



# UNTAPPED OPPORTUNITIES IN GLOBAL VALUE CHAINS: THE CASE OF ADD COUNTRIES

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# Untapped Opportunities in Global Value Chains: The Case of Add Countries

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## Abstract

This paper offers a comprehensive framework for identifying and prioritizing opportunities for export diversification and Foreign Direct Investment (FDI) attraction in the Alliance for Democratic Development (ADD) countries. Utilizing quantitative methods grounded in product and country proximity, four distinct approaches pinpoint industries with untapped potential. The analysis underscores the importance of both upward and downward movements in complexity to enhance participation in global value chains, and highlights key obstacles hindering these countries from capitalizing on these opportunities. Findings suggest that while some opportunities are unique to specific ADD

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countries, others present potential for joint research efforts or collaborative strategies. The authors caution against vertical market interventions in ADD countries and advocate for flexible provision of public goods to support emerging industries. Overall, this study offers valuable insights and actionable recommendations for informed decision-making and strategic planning to promote economic growth and development in Costa Rica, Panama, and the Dominican Republic.

# 1. Introduction

In this paper, we develop some quantitative methods and criteria for the identification of potential new opportunities for export diversification and foreign direct investment (FDI) attraction, and we apply them to a set of small nations that are seeking precisely this type of opportunity: the three founding members of the Alliance for Democratic Development (ADD). The methods, however, can be applied to any country of interest.

Our goal here is to quickly provide a practical tool that FDI attraction agencies may use to identify and prioritize potential FDI attraction opportunities. By the terms of reference of this project, we were posed to use “product space” data to look into the industries that are proximate to those the ADD countries already export successfully; while we have expanded that task with other methods for assessing proximity, it is still in the same spirit of tractability and short-run applicability.

By the same token, we do not attempt to contribute to the academic literature on trade, FDI and the workings of multinational corporations (MNCs). That literature is not only interesting, but also extremely promising down the years, with much especially in the last few years that will be pertinent to our task here. In addition to the emergence of the seminal models in New Trade Theory, we observe in that context models that specifically look into the known effects of the multinational operation of companies regarding the gains from trade, trade patterns, and the effects of trade policy.

<sup>5</sup> There are, more specifically, quantifiable, general equilibrium models that involve firm location decisions, as well as gravity models pertinent to the topic.<sup>6</sup> This includes firms’ analysis of their plant locations, figuring out which plants export where, the effect of MNC plants in a location on gains from trade, productivity spillovers, or where to produce and where to do research.<sup>7</sup> The issue of site selection has also been addressed previously in the operations and research literature.<sup>8</sup> Our task, however, lies elsewhere.

The focus of the paper is on the identification and ranking of these potential new opportunities based on a clearly stated logic—paying attention to the kind of barriers, policy needs, and actions that could facilitate realization of those opportunities. Because the initial conditions, history, and national objectives of our three target nations are so different, so are the recommendations for each of them, although we find some commonalities and even room for cooperation.

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<sup>5</sup> See, most pertinently, Ramondo [18]; Ramondo and Rodríguez-Clare [19]; Ramondo, Rodríguez-Clare, and Tintelnot [20]; or Head and Mayer [13]. See also Grossman and Hansberg [11] or Helpman, Melitz, and Yeaple [14].

<sup>6</sup> See Tintelnot [22] and Morales, Sheu, and Zahler [16].

<sup>7</sup> See Arkolakis, Eckert, and Shi [7]; Alfaro-Ureña [3]; Alvarez [4]; or Arkolakis et al. [8]. See also Allen et al. (2020); Antras, Fort, and Tintelnot [6]; Burstein and Monge-Naranjo [9]; or Oberfield et al. [17]. A survey of previous work on similar topics is in Yeaple [25].

<sup>8</sup> See, for instance Hesse-Owen and Dasker [15] or Verter [24].

Countries may follow several avenues in their pursuit of greater volume and higher quality of export- oriented FDI.<sup>9</sup> For example, they may entice firms that have already invested in the country to expand their operations; bring in new products or lines of products; undertake more complex stages of the same processes; and/or expand the engineering, design, research and development (R&D) or service operations that complement their manufacturing plants. They may try to bring in new investors in those same industries where the country has established a successful track record. Or they may try to consolidate clusters and realize economies of aggregation by bringing key suppliers into the country, facilitating geographic vertical integration.

Countries may take what could be characterized as a more cautious, “horizontal” or industry-neutral approach, focusing exclusively on overall productivity, market access, and business climate, in the expectation that “if you build it, they will come.” But they may also try something perhaps more ambitious: to identify industries in which they have a potential that is currently barely exploited (or not at all) and develop specific capabilities to attract companies in those industries.

In practice, the work of FDI agencies is never exclusively horizontal. Yes, they may work within their own jurisdiction and in coordination with governmental agencies and independent institutions to create general conditions to make the country an attractive investment destination. But some, or even a large part of their work, will necessarily be industry specific.

This opens issues about how FDI attraction agencies should set priorities and targets by industry—and if they could or should—given their country’s FDI attraction record, the success of companies that have already invested in it, the public and private capabilities developed in the process, the availability of human resources with the required skills, and other initial conditions.

This relates to the old discussion regarding vertical versus horizontal productive development policies and to the discussion about market interventions versus public goods [1]. On the question of whether strictly horizontal policies are even possible, it has been argued long ago by Rodrik and Hausmann [21] that governments are “doomed to choose,” in the sense that public policy in general, and productive development policies in particular, necessarily have differentiated impacts on different industries and regions of an economy: the highway will pass closer to the location of industry A or industry B; the education budget will be somehow distributed between training that is more useful in A or B; the FDI attraction agency will have to choose which fair to attend,

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<sup>9</sup> Later in this paper, we refer to opportunities as “complexity enhancing” when the relevant product complexity index is higher than the country’s economic complexity index, and “complexity reducing” if it is lower.

which expertise to develop in its staff, where to prospect, which company to visit, what policies to lobby about first, etc.

Vertical market interventions are, in our view, not a very good idea, given their institutional requirements and the region's track record when they have been used. At any rate, for all practical purposes, they are a fiscal impossibility for ADD countries at present. If, however, differentiated sectoral impacts are to a certain degree unavoidable and, moreover, FDI attraction agencies with (always) limited resources need to establish priorities in their efforts (even if the incentives for FDI attraction are not industry specific), then they need a method (or methods) for identifying the most promising new opportunities— that is, to objectively use information about the characteristics and current industrial composition of the country to guide policy choices that are unavoidably vertical. In this paper, we build on existing methods and propose new ones, in hopes that they might prove useful for FDI attraction agencies.

This question of defining priorities is particularly pertinent today, because the long-announced restructuring of the geography of global value chains (GVCs) is actually taking place [2]. This restructuring may be partly the result of technological change, which results in changes in the optimal location of different activities from an efficiency point of view. But three developments have accelerated what, until recently, was at best an incipient trend:

- The fragility and risks associated with very long GVCs, with a heavy concentration of manufacturing activities in a—from an Occidental point of view—very distant location, were exposed by the pandemic. While this alone created an economic incentive for shorter chains, or nearshoring, a first-mover disadvantage prevented large relocations based on this incentive alone: suppose company A decided to move some of its operations to a closer but slightly more expensive location, while company B did not. Come the next disruption of commercial flows, be it from a pandemic or any other reason, company A would be at an advantage. Meanwhile, company B would enjoy a cost advantage—large enough, perhaps, to dissuade company A from relocating any operations.
- Old-style industrial policy, with large federal and state subsidies for certain industries, has made a big comeback in the United States, and similar policies are likely to be implemented by other developed countries, fundamentally changing the cost-benefit analysis of location decisions for some industries.
- Geopolitics has also made quite a remarkable comeback, with an intensity not seen since the end of the Cold War. Explicit national security considerations are now part of economic policy decisions in developed countries, resulting, for example, in restriction on exports of certain goods and technologies to geopolitical rivals.

In this context, while economics by itself may provide incentives for *nearshoring*, albeit with a first-mover disadvantage,<sup>10</sup> geopolitics may provide incentives for *friendshoring*, working geographically in the same direction as nearshoring, but subject to geopolitical alignment, misalignment, or conflict considerations.

From this last perspective, the three original ADD members<sup>11</sup> might be in a particularly advantageous position in Latin America: all three have enjoyed far better than average export growth in the last few decades and have succeeded (both in terms of quantity and quality) in attracting FDI. All three are democracies, with a harmonious relationship with the nations that are most commonly the origin of FDI for them, preferential access to their main markets, and simple logistics connecting them to the United States. Therefore, these nations are—along with Mexico—arguably the most viable places to take advantage of the opportunities for nearshoring and friendshoring that we are witnessing. Hence, this is the right time for them to seek bigger, new, and more ambitious targets in FDI.

Note that in pursuing investment in new activities or industries, a country will need to answer two questions: what new activities or industries it *might* be able to attract, and what it would need to do in order to attract them. In this paper, we address mostly the first question (opportunity identification), although some policy considerations regarding the second question are reviewed in the final section ([page 53](#)). A more detailed discussion of FDI attraction policies and instruments is beyond the scope of this paper.

Our goal then is simply to attempt an answer to the following question: In which manufacturing industries—presently absent from their territory or underdeveloped—may the ADD nations find new opportunities for increased and improved participation in GCVs, given their current conditions and industrial configuration, and the potential reconfiguration of those chains?

It was originally proposed that in order to answer this question we would use Hausmann's Atlas of Economic Complexity (AEC) data to find industries and activities that are close to each country's current position in the product space, with the

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<sup>10</sup> The first firm to move away from the least=cost location may have a potential gain in terms of value chain resilience, but the gain will not be realized until a trade disruption occurs. Meanwhile, the first mover will be at a cost disadvantage with respect to its competitors.

<sup>11</sup> Ecuador joined ADD later on, but its economy, export profile, and FDI attraction record are so different from those of the other ADD countries that it did not make sense to include it in our analysis, as the pertinent efforts there are, in our opinion, of a different nature.

understanding that they represent opportunities for economic diversification.<sup>12</sup> Upon these results, we would be able to tap on other expert opinion and identify policy options.

As the project advanced, it was clear that there were circumstances and opportunities that made it more valuable to expand the work in some respects and redirect it in others.

First, we realized that using distance data as published in the AEC, which is calculated at the four-digit aggregation level, yielded results grouped in categories that were too broad for our purposes. Therefore, we recomputed the distances using the same methodology, but applied data on trade in manufactured goods at the six-digit level, which is more appropriate for what we need to do. For similar reasons, we decided to restrict our analysis to manufacturing industries at the expense of services, because the service data available for a large enough set of countries are even more aggregated.<sup>13</sup>

Second, we developed three alternative methods in addition to the above to identify sectors or industries that might be natural next steps in FDI and exports for each of the ADD countries. One of these methods seeks similarity in resource endowments, while the others seek similarity in export profiles.

Each of these methods was applied twice, using two different time frames for comparison purposes. This multiplicity of methods and time frames means that for each ADD country, we generate a set of new target industries in seven different ways. Surprisingly, given how different the approaches are, some industries were identified as low-hanging fruits for the same country by four or more of these—and, in a handful of cases, by all seven.

Conditions and opportunities have changed quickly for these countries in recent times. For instance, while ADD as a concept is still very relevant—that is, the features and situations that make these three particular countries ideal targets to take advantage of GVC reorganization—it seems to have been superseded as a cooperation platform by the American Partnership for Economic Prosperity (APEP). This is good news because there is room to integrate into APEP measures about enhanced trade integration, as well as coordinated industrial policies with the United States (this is already happening, in fact), involving a larger set of countries, and entering areas in which ADD alone cannot act.

Furthermore, as the three original ADD members are also APEP members, this initiative does not change the validity of the motives that started the project in the first place. However—and this is the bad news—**commercial conflicts between ADD countries have prevented them from undertaking any strong joint action in terms of FDI**

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<sup>12</sup> By construction of the AEC product space, if industries A and B are far closer to each other than A and C, a country that is able to produce A should much more easily start operating in B than in C, at least because A and B are located in the same place far more often.

<sup>13</sup> We knew from the outset to exclude the agricultural and mining sectors, for in them the key determinant of investment location is the availability of specific natural resources or conditions. But we expected data availability would not prove an insurmountable obstacle to consider services.



**attraction**, or any coordinated activity (negotiation or lobbying) within the APEP process at the government level. This has weakened their cooperation at the private level, which would have been valuable in taking advantage of untapped opportunities in GVC participation. Clearly, the question is becoming more and more what can these countries do individually (or within APEP) to attract FDI, and in what sectors or industries is there more potential for each of them separately? The question is less and less what these countries can do as a group toward this goal, which was one of the emphases we expected at the outset. Our redirection here reflects that.

Similarly, after approaching a handful of local experts and decision-makers, we concluded that it was better to focus our efforts on quantitative results rather than on expert, yet subjective, opinion.<sup>14</sup>

As a result, our focus is on identifying sectors and industries that, in some relevant sense, are close to a country's current capabilities, natural areas of expansion (or low-hanging fruits) of their FDI in the near future, using a variety of data and methodologies. We believe that our results can be helpful to policymakers, and in particular to the agencies in charge of promoting exports and FDI. Notably, we

produce lists of between 30 and 50 specific industries that seem promising for each country, in addition to an analysis encompassing those and hundreds more.

The rest of this paper is organized as follows:

- In the next section, we describe our methods.
- In the subsequent section, beginning on page 16, we describe some features the three ADD countries have in common, as well as several relevant differences in their starting conditions, capabilities, and policy objectives.
- In the fourth section, beginning on page 25, we present a summary of our main results and, for each country, present what we consider the most salient opportunities identified by our quantitative analysis: the low-hanging fruits.

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<sup>14</sup> Some experts tasked with commercial intelligence—and thus concerned about diversification into new industries—seemed to be still early in a promising process of industry identification, although we look forward to what they produce in the near future, and perhaps to serve as an input toward that. Furthermore, despite all the talk about GVC reconfiguration, some agencies are facing resource constraints that limit the expansion of their portfolio of expertise and targeted FDI attraction policies. We also heard more opinions about what kind of industry would be desirable than about their feasibility. Some experts believe that increased flows of FDI in existing industries confirm there is still significant room to grow within them, reducing the priority of finding something new. Others keep their focus on the improvement of the general (or cross-industries) business climate, necessary to face the challenge of expanding existing operations in size or complexity. These are of course all very worthy considerations, but not along the lines on which we seek to contribute in this project.

- The final section, beginning on page 53, concludes with a discussion, in an exploratory fashion, of some obstacles that currently prevent countries from taking advantage of the opportunities we have identified, as well as policy alternatives that may help them overcome these obstacles.

The detailed results of the quantitative analysis are presented in a series of appendix tables.

## 2. Measuring Proximity and Filtering Results

### 2.1. Measuring Proximity

The key empirical question we try to answer in this report is quite simple: given current public and private capabilities and current export industries in each ADD country, what products are they not exporting (or are barely exporting) that they might be able to expand significantly?

We use two complementary approaches to answer this question: one seeks proximity between products, and the other proximity between countries. For a given ADD nation, if a product is close (in the first sense) to something it already exports, or if a product is exported significantly in a country that is close (in the second sense), then we consider that product a relevant candidate for consideration as a next step for the industrial expansion. We then develop some criteria to evaluate which candidates take priority over others, as they seem more viable or more relevant.

The challenge is of course to define and empirically estimate what “proximity” means. We approach the problem from four different angles. In the rest of this section, we describe the four distinct methodologies employed to that purpose, which we applied to the three ADD countries.

For the second, third, and four approaches (based on proximity between countries), we apply them to the data using two different time frames. The *concurrent* analysis seeks which countries are proximate today to a given ADD nation today; the *lagged* analysis seeks which countries were proximate *in the past* to that given ADD nation today. We believe that the concurrent analysis helps establish the feasibility of an industry in a location: if we are like them now, and they can do X, then we can do X. Nevertheless, as the emergence of a new activity is a gradual process, the picture may be completed by seeing what else has emerged in the intervening years in countries that are close: if we are like they were then, and over time they developed Z, we could over time develop Z. In all of the above, we use 2019 data for the present across the different databases we consider,<sup>15</sup> since the numbers for 2020 or 2021 would have been affected by the

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<sup>15</sup> For industry data we use the six-digit database in the AEC; for other national characteristics, we rely as well on the Penn World Tables (10.0) and the World Bank’s World Development Indicators. For some of the descriptions of the ADD nations discussed in the third section (page 13), we also rely on the Social Progress Index of the World Economic Forum and official national statistics.

COVID pandemic—which had very disparate effects across countries and especially across industries. We use 2007 data for “in the past”—a year that precedes the global financial crisis—for similar reasons.

### **2.1.1. Method 1: Vicinity in the “Hausmann Forest”**

In this first method, we follow Hausmann et al. [12]. There, the proximity between two industries is based on the probability of a country displaying revealed comparative advantage higher than 1 in one of them, given that it does in the other. Given the asymmetry of these conditional probabilities, which contrasts with the expected symmetry of proximities, Hausmann et al. [12] opt for a conservative approach by defining them as the minimum of both conditional probabilities. More specifically, proximity between a pair of industries  $p$  and  $q$  is defined as:

$$\varphi_{p,q} = \frac{\sum_c M_{c,p} M_{c,q}}{\max(k_{p,0}, k_{q,0})}$$

where  $M_{c,p} = 1$  if country  $c$  exports product  $p$  and  $RCA_{c,p} > 1$  and 0 otherwise, while  $k_{p,0}$  is the ubiquity of product  $p$ . In simple terms,  $\varphi_{p,q}$  is the ratio between the number of countries that export both  $p$  and  $q$  and, the maximum between the countries that export  $p$  and countries that export  $q$ .

Measures of proximity can be found in the AEC database at a four-digit level. We think that industry groups at that level are too heterogeneous to be useful for the purposes of our analysis, so instead we generate our own distance indicators at a six-digit level, using the same database and the same methodology.

Afterwards, for each ADD nation, we use as a starting point the list of industries that represent at least 0.25% of total manufacturing exports,<sup>16</sup> and for each element of that list identify the 10 other industries that are most proximate to it.<sup>17</sup> We then keep track of the number of ways in which each identified industry emerges in the analysis (a given industry may be among the 10 most proximate to more than one of the main exports of the same country).

Tables A.1–A.3 describe the results. For the sake of tractability, we only report in these tables the 40 industries most proximate for each country (although a much larger

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<sup>16</sup> This list happens to contain almost all the industries with the highest revealed comparative advantage, as is illustrated in Tables E.1–E.3.

<sup>17</sup> We expand this when there is a tie in proximity between industries.

number is used for some of the analyses presented in the findings section, beginning on [page 25](#)).

### **2.1.2. Method 2: Comparative Advantage by Factor Endowment**

In this method, we are applying the logic of the Heckscher-Ohlin (factor endowments) model of international trade. According to that model, a country will display comparative advantage (and thus export) those goods that are produced using relatively intensively (in a well-defined sense) those resources that are relatively abundant (idem) in that country. Hence, the resource endowments held in one place will determine the relative prices of those resources and then the range of activities that can be undertaken there competitively and exported.

We seek which *countries* have factor endowments that most closely resemble that of each of the ADD nations, and then ask which *products* are produced and exported from each of those countries that are not exported (at least in the same proportion) in the corresponding ADD nation.<sup>18</sup>

For each country with the available data and with a population of at least 500,000, we compile:

- Capital per worker  $k_i = \frac{K_i}{L_i}$ , extracted from the Penn World Tables (PWT 10.0), using variables *cn* for capital and *emp* for labor.
- Human capital per worker  $h_i = \frac{H_i}{L_i}$ , again from PWT 10.0, using variable *hc* for human capital.
- Income flow coming from natural resources, per worker  $n_i = \frac{N_i}{L_i}$ , where  $N_i$  is obtained from total natural resources rents in the World Development Indicators (WDI) for 2019. This corresponds to the mineral, hydrocarbon, and forestry contribution to gross domestic product (GDP).
- Arable land per worker  $m_i = \frac{M_i}{L_i}$ , again using WDI as a source, and in particular using arable land (hectares per person) to capture  $M_i$ .<sup>19</sup>

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<sup>18</sup> An alternative, perhaps closer to the spirit of the model, would have been to seek for industries with similar factor intensities rather than for countries with similar factor endowments. That is not what we do, partly because of the limited availability of factor intensity data, and also because it would vary widely by location—as it should—because of factor price differences and the absence of full diversification. Furthermore, there may be multiple ways to skin the same cat: under more peculiar production functional forms than Cobb-Douglas, and given significant barriers to trade and to the movement of resources, there may be widely different factor intensities that allow countries to compete in the same product.

<sup>19</sup> From the definitions in the WDI, total natural resources rents (% of GDP): Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Arable land (hectares per person): Arable land (hectares per person) includes land defined by the Food and Agriculture Organization of the United Nations (FAO) as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded.

- GDP per worker  $y_i = \frac{Y_i}{L_i}$ , using variable *cgdpo* for  $Y_1$ , to capture indirectly the effects of total factor productivity.<sup>20</sup>

We deviate from the standard formulation where natural wealth is just ignored (that is, where  $n_i$ ,  $m_i$  are just taken to be part of total factor productivity [TFP]) because the effects of those natural resources are of course not homogeneous across industries (unlike TFP in the basic formulation of the model), so we would expect to observe very different industries prevail in places with very similar  $k$ ,  $h$  but very different  $n$ ,  $m$ . Clearly, extreme differences in the latter may lead to very different exporting industries, given the bias on the valuation of the currency and, potentially, Dutch disease.

This yields a  $5 \times 137$  matrix:

$$M_e = \begin{pmatrix} \frac{K_1}{L_1} & \frac{H_1}{L_1} & \frac{N_1}{L_1} & \frac{M_1}{L_1} & \frac{Y_1}{L_1} \\ \frac{K_2}{L_2} & \frac{H_2}{L_2} & \frac{N_2}{L_2} & \frac{M_2}{L_2} & \frac{Y_2}{L_2} \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ \frac{K_m}{L_m} & \frac{H_m}{L_m} & \frac{N_m}{L_m} & \frac{M_m}{L_m} & \frac{Y_m}{L_m} \end{pmatrix}$$

We can then perform principal component analysis on the scaled version of the  $M_e$  matrix to synthesize the relevant information for each country  $c$  into its principal components  $P^c = \{P_i^c\}$ , where the number of such principal components is chosen as to account for at least 90% of the total information in  $M_e$ . We then compute the distance between any two countries  $c$ ,  $d$  as the Euclidean distance between  $P^c$  and  $P^d$ , or  $D_{c,d} = \sum_{k=1}^n (P_k^c - P_k^d)^2$ .

For each ADD nation  $c$ , we derive the 17 closest countries (according to  $D_{c,d}$ ), and for each  $d$  we seek for the 10 industries  $s$  in which the export share in  $d$  exceeds the export share in  $c$ ,<sup>21</sup> that is:

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<sup>20</sup> We do not use the total factor productivity (TFP) indicator that appears in the PWT, because that one is constructed assuming a Cobb-Douglas production function and a closed economy, which implies that it is close to log -colinear to the other variables. Furthermore, as shown in Ventura (1997) and Ferreira and Trejos [10], even assuming the same functional forms at the industry level, the aggregate production function of a trading economy may have a different—and peculiar—shape, which implies that the standard closed economy TFP definition is not only wrong, but biased in a particular way reflecting trade policy.

<sup>21</sup> We picked 17 countries and 10 industries per country as this seemed to yield lists of the right size to keep our analysis comprehensive yet manageable. A similar criterion is applied in the next two methods to pick how many countries and industries to allow.

$$\frac{x_s^d}{\sum_{i=1}^n x_i^d} > \frac{x_s^c}{\sum_{i=1}^n x_i^c}$$

which would be the resulting candidate industries for  $c$ .

We perform this analysis both on the concurrent and the lagged time frames. The list of industries for each ADD country and time frame are in Tables B.1–B.6, and the list of the most proximate countries are in Tables B.7–B.9. We keep track of the number of paths by which we arrive at each industry in the results. We compare the two-time frames in Tables B.10–B.12.

### **2.1.3. Method 3: Revealed Capacities**

Here, we go from products to countries to products. We start with the main exports of a given country in ADD, then we say that another country is close to, when any of those products represent a highest share of their total exports, and then derive the other main export products for each of those countries.

Specifically, we define  $s_j^d = \frac{x_j^d}{\sum_i x_i^d}$  as the share of product  $j$  in the total manufacturing exports of country  $d$ . Then, for a given ADD country  $c$ , we select its 10 main exports; for each of those, we identify the 10 countries  $d$  that display the highest  $s^d$ , truncating the list if there are less than 10 countries where  $s_j^d > s_j^c$ .

Finally, for each of those countries, we identify their own 10 main export products.<sup>22</sup> This leaves us with a long list of industries that are candidates for consideration—emerging through chains that involve products with different export shares—which could have been as many as 1,000, but in fact are far less, coming up many times.

Again, we apply this method for concurrent and lagged data, for each ADD nation, and present the top resulting industries in Tables C.1–C.6. For each industry, we report the number of countries and the number of ways (countries × products) through which each industry emerges in the results. The list of proximate countries are in Tables C.7–C.9. We compare the two-time frames in Tables C.10–C.12.

### **2.1.4. Method 4: Comparative Export Profile**

This method involves looking for patterns more broadly across manufacturing exports, and identifying for each of the ADD nations a set of countries that display a similar pattern, to then use that set to identify new export opportunities.

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<sup>22</sup> A reader may question why we start with the biggest exports of  $c$ , rather than the sectors with the higher revealed comparative advantage coefficients in  $c$ . We tried both ways and found that for all three ADD nations, both approaches lead to pretty much the same results.

Let  $(x_1^j, x_2^j, \dots, x_n^j)$  represent the export vector of a country  $j$ , across all  $n$  industries at a six-digit level.

We construct a matrix  $M$ , whose  $j, k$ -th element is the proportion of country  $k$  exports that comes from industry  $j$ , or  $s^k$  as defined above, so:

$$M = \begin{pmatrix} \frac{x_1^1}{\sum_{i=1}^n x_i^1} & \frac{x_2^1}{\sum_{i=1}^n x_i^1} & \cdots & \frac{x_n^1}{\sum_{i=1}^n x_i^1} \\ \frac{x_1^2}{\sum_{i=1}^n x_i^2} & \frac{x_2^2}{\sum_{i=1}^n x_i^2} & \cdots & \frac{x_n^2}{\sum_{i=1}^n x_i^2} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{x_1^m}{\sum_{i=1}^n x_i^m} & \frac{x_2^m}{\sum_{i=1}^n x_i^m} & \cdots & \frac{x_n^m}{\sum_{i=1}^n x_i^m} \end{pmatrix}$$

Of course, each row of  $M$  adds up to 1, as each column represents the percentage of commodity  $x_i$  exports of a country. To reduce the dimension of the problem (the matrix has more than 3,000 columns and nearly 170 rows), principal component analysis is applied to  $M$ , extracting sufficient principal components as to account for at least 80% of the cross-country variability. We define the proximity of two countries as the Euclidean distance between their principal components.

Finally, we select the 17 closest countries to each ADD country. We find the industries in those other countries with the highest weight in total exports, provided they are not even weightier in the ADD nation of analysis. The list of countries associated with each analysis may deliver the same industry multiple times.

Again, the method is performed for lagged and concurrent data for each ADD nation. Tables D.1–D.12 display the lists of industries—each also characterized by the number of paths leading to it—the lists of proximate countries, and a comparison of both time frames.

## 2.2. Filtering the Results

After application of the four methods, with lagged and contemporaneous comparisons for three of them, we have a first list of potential opportunities for each country. Not all items on this first list are feasible, and the initial list needs to be filtered, because our methods do not distinguish some cases where:

- Proximity to raw materials is required for the feasibility of a potential new opportunity, and those raw materials, chemical industries, or other suppliers are not available in the country of interest. Using this criterion, many mineral processing activities found on the original list were discarded.

- Some industries may be incompatible with current policy or even banned by legal or administrative regulations. When we were aware of such incompatibility, we discarded the relevant industries.
- Country size was not considered in any of our measures of proximity, so opportunities that were associated with proximity as we measured it but also with economies of scale that no ADD country can realize were also discarded.
- Finally, we discarded opportunities that corresponded to industries already well established in the countries of interest, since our goal is to identify new opportunities for FDI attraction and export diversification. Our methods have nothing to say regarding the feasibility of expanding already established export industries.

Some readers might be reasonably skeptical about such ad hoc, “by hand” filtering, so the complete, unfiltered results are available from the authors upon request.

Tables 3, 8, and 14 display a summary of the filtered results for each of the three ADD nations. The headings also indicate the Economic Complexity Index (ECI) of the nation in question. The tables list all the industries or activities that came up as results in more than three of our seven methods.<sup>23</sup> For each industry, the tables contain the industry code and name, the number of methods, countries, or paths through which it came up, its Product Complexity Index (PCI), and its Revealed Comparative Advantage Index (RCA). We recalculated the ECI and PCI directly at the six-digit level, corresponding to our database for 2019. The method for this calculation is described in the Digital Appendix as well.

Of course, these lists are still too long, and further refinement needs to be applied so we can truly claim we are suggesting priorities. To pick and choose within the lists—and thus reach the priority industries presented in the findings section (page 25)—we rely on some numerical features. These include its PCI (as it relates to the country’s ECI), as industries with a high PCI are less ubiquitous, and presumably the productive environment has to be richer and more competitive in order for firms to want to establish there; and its RCA, that is, an indicator of the extent to which the industry has already grown locally as an exporter, relative to what we see in the rest of the world. We also look into the number of methods, and the number of paths within a given method, that put the industry on the list, as well as the “quality” of the link, as assessed by the importance of the related activity or country (for example, is the industry on the list because it is the closest activity to the largest current export, rather than the eighth closest activity to the tenth largest current export). We also consider “clustering” arguments: the case for an industry on our lists is stronger when similar products, or products using similar skills or similar inputs, are already major local exports. In some

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<sup>23</sup> We applied the first method to concurrent data only, and the other three methods to both lagged and concurrent data, for a total of seven.



cases, “being in the same two-digit chapter” and “being in the same cluster” can be used almost interchangeably.

Besides quantitative issues, we considered other, more qualitative, arguments, as—for instance—whether a particular product seems more or less tradeable; whether MNCs or domestic companies are more typically representative in a given industry; whether existing production in that industry is sheltered by high tariffs or other forms of protection or advantage; or whether domestic companies in that industry seem to have existed for a long time, produce for the local market, and do not export; and other criteria suggested by our own experience in the field.

One can categorize potential new industries with upwards or complexity-enhancing movements, on the one hand, and downwards or complexity-reducing movements, depending on their PCI and how it compares to current “frontline” activities in the country, and on the ECI for the country as a whole. Since most countries are usually interested in expanding and upgrading their participation in GVCs, there might be a temptation to discard opportunities that represent a step back in terms of complexity. We will argue that this would be a mistake. Countries are internally heterogeneous, and the fact that workers/companies/regions are ready to engage in very sophisticated activities happens although there are others who are not. Places that may have achieved a high level of sophistication in their export sector may at the same time exhibit high levels of unemployment—particularly among younger adults with no tertiary education—and large, low-productivity informal sectors, as well as a large number of very small, low-productivity enterprises even in the formal sector. And an agglomeration of advanced industries in the most competitive urban regions may coexist with problems of a more basic nature elsewhere in the country. It thus could be the case that a country might be able to jump into higher-complexity activities and simultaneously need to grow in lower-complexity activities, as large segments of the population and an equally large proportion of the economic establishments in the country are not ready to enter the more complex activities.

### **3. The ADD Countries**

There is a reason why the ADD exists—why the private sectors of these three countries understood there was an opportunity to work together, and generate support from their governments and global counterparts, toward capitalizing the current economic and political global environment in a manner that enhanced their capacity to attract more FDI, as well as increase the size, diversification, and sophistication of their exports. All three are democracies, arguably the deepest and most mature in their immediate region

(Central America and the larger nations in the Caribbean).<sup>24</sup> All three have a history of commitment to trade and market principles, and a good working relationship with the nations that are both the main markets and the main sources of FDI, notoriously the United States. Uniquely among their neighbors, all three have net inflows, rather than outflows, of immigration,<sup>25</sup> acting in a way as a buffer of population movements that otherwise would end up in the developed world. While the ADD nations are still developing countries and are faced with myriad problems, all three perform better on a number of key social indicators than the other main nations of the immediate region, as shown, for instance, by the World Economic Forum's Social Progress Index (Table 1).

The ADD make sense not only politically, but also economically. These are three of the five fastest-growing countries in Latin America,<sup>26</sup> their economies are comparatively open and have been successful in attracting FDI.<sup>27</sup> Panama, at \$26,606, has the highest per capita GDP in Latin America,<sup>28</sup> with Costa Rica fourth (\$19,778) and the Dominican Republic seventh (\$16,768)—at least double that of the other Central American countries. In all three ADD countries, FDI has also been large and strategic—allowing to update critical infrastructure, or to enter new and far more complex industries—and has consistently been perceived as a tool toward economic and social development, and thus a national priority.

For the purposes of FDI attraction, therefore, the three ADD nations share some basic objectives. Currently, Western MNCs are trying to diversify the location of their

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<sup>24</sup> Costa Rica is the strongest democracy in Latin America, according to the democracy ratings of the Economist Intelligence Unit, and second (behind Uruguay) in the Democracy Quality Index of the University of Würzburg for 2022. In the immediate region, Costa Rica is the only country gaining the top qualification—full democracy or working democracy, respectively—while Panama and the Dominican Republic are second and third, respectively, in the immediate region, albeit behind some South American nations.

<sup>25</sup> Data about cross-country migration, even at a multilateral level, varies significantly across territories in methodology and precision; additionally, and obviously, legal migration is far better documented than the—in this region, perhaps larger—illegal counterpart. Nevertheless (according to data in Expansion), in 2020, Costa Rica had roughly 521,000 immigrants and only 150,000 emigrants, while Panama had 313,000 and 140,000. While the numbers for stocks are reversed in the Dominican Republic (604,000 and 1,608,000), other evidence indicates that net inflows are positive. More importantly, all three countries are large recipients of migrants from certain origins (Nicaragua, Venezuela, Haiti, and others) that would otherwise probably end up in the United States, making prosperity in the ADD a relevant objective for the U.S. government.

<sup>26</sup> According to World Bank PPP data, annual output growth has been faster in the Dominican Republic and Panama since 1960 (6% and 5.6%, respectively, up to the outset of COVID) than in the rest of Latin America, with Costa Rica in fifth place. In the three and a half decades since the end of the debt crisis, all three countries are among the five highest in per capita GDP growth, only behind Chile and Uruguay, and significantly ahead (up to 180 basis points difference) of the rest of the immediate region.

<sup>27</sup> Exports of goods and services, as a fraction of GDP, are ahead of the hemispheric average in all three countries, especially in Panama. In 2021, FDI (as measured in balance of payments) was 4.2%, 3.2% and 6.1%, respectively, well above global averages (1.9% for Organisation for Economic Co-operation and Development [OECD] countries and 2.1% for the world as a whole).

<sup>28</sup> Corrected for purchasing power parity, in 2022, according to the WDI.

operations and are prioritizing geographic proximity and political affinity in their site selection process, making it a good time to reinforce the efforts of their FDI attraction agencies. Much of the growth potential is in the expansion of operations already in place—more volume, more steps done locally, moving up the ladder to more sophisticated processes within the same plant—as well as attracting new activities from the same companies, or new companies from the same activities. All three countries have a good track record in post-establishment performance and reinvestment. But it is also time to prospect in what industries lie new opportunities to not only grow but also move up the complexity scale.

**Table 1. ADD Countries’ Rank Position on the Social Progress Index**

Country	SPI			HBN			FOW			OPP		
	G	L	R	G	L	R	G	L	R	G	L	R
Costa Rica	37	2	1	43	1	1	33	1	1	34	3	1
Dominican Republic	77	13	4	100	13	3	69	6	2	69	10	3
Panama	49	5	2	64	6	4	50	11	3	55	5	2

Note: SPI = aggregate Social Progress Index; HBN = satisfaction of human basic needs component; FOW = foundations of welfare component; OPP = opportunity component. G = global ranking; L = position in Latin America; R = position in immediate region of Central America and the Caribbean. Considers only fully independent nations with at least half a million inhabitants.

Some of their main strengths and weaknesses are also common; in particular, all three face—albeit for different reasons—scarcity of well-trained labor (their human capital endowments are very similar, and just above the world average, but demand is higher in the ADD countries precisely due to the presence of highly sophisticated industries in manufacturing and services), are relatively poor in farmland (under 20% of the world average in arable hectares per worker), and still have a way to go in order to catch up in income or capital stocks with the developed world. Table 2 shows the values for all three countries in terms of their resource endowments, as were applied in method 2 (described on page 11).

The table also begins to illustrate their differences in conditions and challenges. For instance, Panama is surprisingly capital rich (including public infrastructure that is globally significant), and Costa Rica surprisingly capital poor. Mineral products are relevant for the Dominican Republic far more than for its two peers. Their differences are not limited to resources or current industries, but also extend to their goals regarding FDI attraction, which for valid reasons are not exactly the same. In other words, all three

countries share a common objective of finding new industries—for which they would be suitable sites of operation—up the complexity scale from their current industries. But beyond that, one must add in each country some twist regarding the industries that may be a priority. Hence, we need to look at each individually.

**3.1. Costa Rica**

Costa Rica has been very successful (among the best in the world) in the attraction of investment and expansion of exports in very sophisticated activities in manufacturing and services, whose growth, deepening, and levels of remuneration have played a very large part in the improvement of national economic conditions. The share of high-tech products among its exports has oscillated between 17% and 45% in the last two decades.<sup>29</sup> About 13% of the labor force is employed by foreign companies from the zona franca regime (not counting their domestic suppliers), which has gone through a double-digit annual growth rate for several years. Average remuneration is significantly higher, and working conditions better, than in local or non-zona franca companies. Medical equipment and devices of various kinds, as well as electronics and other advanced manufacturing, are the country’s top exports, as shown in Table F.1. Much of this success has to do with a very good institutional base that supports FDI attraction and export promotion, and that oversees the operation of the zona franca regime. This has enabled Costa Rica to achieve, for instance, a level on the Economic Complexity Index that is comparatively high for its income level. As another way of making the same point, notice the contrast between the countries listed in Table B.7, which are the peers of Costa Rica in terms of resources, and in Table D.7, which are its peers in terms of exports. The former list, while prominently containing Mexico and China, is essentially a set of middle-income countries, many focused-on textiles and other low-skill manufactures. The latter list is, with some exceptions such as Mexico, India, and the Dominican Republic, essentially a set of developed Organisation for Economic Co-operation and Development (OECD) countries and European nations, with the United States in the second spot.

**Table 2. Factor Endowment Data for ADD Countries**

Country	Capital stock per worker	Human capital indicator	Arable land per worker	Income flow from natural resources	GDP per worker
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<sup>29</sup> This high variability is explained by the manufacture of microchips, especially by Intel, which conducts a significant portion of its A&T operations in Costa Rica (the part of the process that takes silicon wafers of electric components and turns them into individual microchips). While the main exporter in the country (by gross value) for two decades, Intel closed its manufacturing operations—while keeping open its research and shared services—in 2014, only to reopen them in 2023. Hence, the analysis we described methodologically in the second section (see page 7) and present in the findings section (see page 20) is based on data where this kind of work in electronics is far less important as an economic activity than it is today.

Costa Rica	96,264	2.695	31,638	0.050	41,646
Dominican Republic	151,328	2.767	39,710	0.981	37,624
Panama	266,045	2.888	20,913	0.133	66,158
World	211,541	2.697	219,281	0.221	48,139

Note: World refers to the average across the sample of 137 countries with population over 50,000 and all the data needed available in the World Economic Indicators and the PWT 10.0).

Costa Rican manufacturing also includes a strong base of local companies in chemicals, medicines and (especially) consumer nondurables, which export significantly to the region, under the terms of the Central American Common Market. Service exports, while not in the scope of this paper but certainly worthy of mention, are about as large as exports in goods. Costa Rica is a significant tourism destination (like the other ADD countries), but adds at least as much employment and exports from information technology (IT) and corporate services. Finally, despite its very low endowment of arable land, it has historically been a significant exporter of high-value-added agriculture, especially in fruits, tubers, and other miscellaneous products.

However, Costa Rica faces two challenges that are critical for its FDI attraction efforts in the next few years. The first has to do with the availability of qualified labor. Despite a well-deserved national reputation that points at human capital as a strength,<sup>30</sup> so many years in which growth has concentrated in specific industries that require relatively sophisticated workers—electronics, medical equipment manufacturing, corporate services, IT—have brought about a scarcity of those workers. The portion of the labor force and of existing local suppliers that can engage in those activities is not the majority, of course, but still surprisingly large. In that sense, diversifying into other industries that, while equally challenging and complex, at least require labor trained in other fields, is essential.

This problem is compounded by the fact that the educational system is no longer up to the challenge, so the stock of qualified workers may look good, but the inflow of new ones into the labor market does not. As various deep analyses have shown,<sup>31</sup> there are

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<sup>30</sup> Not only is there a high stock of trained people, but Costa Rican workers also display high levels of soft skills, which typically lead companies to end up performing far more complex processes there than originally planned.

<sup>31</sup> The United Nations Development Programme's State of the Nation Program does a very good job of following up on matters like these; and in the last few years, a number of very good studies—the State of Education Reports—have delved into the matter in detail. For a less detailed study, which is on the other hand geared specifically toward the talent needs necessary to succeed in FDI-led industries, see Trejos et al. [32].

many areas of potential improvement. For example, in the last few years, the dropout rate has escalated, as most students in nontechnical institutions, if in doubt that university is in their future, choose to leave schooling at the end of their ninth year rather than pursue their high school diploma. This does not happen in technical training high schools, which are far more appropriate for the labor market, but their share of the student pool remains too low. In general, the educational system acts in many ways as if moving away from science, technology, engineering, and math (STEM) was a goal. There are plenty of other ways the educational system needs fixing and, until that happens, there will be insufficient labor to satisfy the demand of the most advanced and sophisticated components of the economy—while too many potential workers with low skills remain unemployed, in informality, or frustrated out of the labor force altogether.

The second challenge compounds the educational problem. Costa Rica's population is very concentrated in a small valley, merely 13% of the territory by surface, that includes the Greater Metropolitan Area as well as some of the most productive farmland; it is the home of about two-thirds of the population and three quarters of output. The economic and social asymmetry between the Central Valley and the rest of the country is large, and a vast majority of FDI—as well as of the most sophisticated and largest domestic companies—is located in the former. The periphery of the country, with lower labor density and less appropriate business climate, as well as many less-educated workers in the Central Valley itself, cannot aspire at this point to jobs in the industries with highest complexity, such as IT, electronics, or medical equipment. On the other hand, and partly through the chronic over appreciation of the currency, among other phenomena, Costa Rica has shed over the years many companies and industries that are lower in the complexity scale, and precisely where the jobs and growth for that portion of the population with lower skills could be found. These industries did use to be in Costa Rica. When the first efforts to attract FDI in the late 1980s and early 1990s first succeeded, it was precisely apparel and plastic extrusion companies that led the way. But the country did not succeed in keeping lower-tech industries, and as they got crowded out of the best-trained workers and most productive regions, they did not go down the ladder within the country to other labor and territory, but rather left it altogether.<sup>32</sup> It is one labor market, one regulatory standard, and one currency, common across all sectors in the same economy; as the conditions reacted to success in frontline industries, they worsened for the rest, leading to high informality and increasing long-term unemployment for people with low skills or in remote places. There is now an awareness in the national discussion, government, and institutions in charge of promoting trade and FDI that, in addition to continued growth, diversification, and deepening in complex industries, the country needs to recover companies in more labor-intensive and less skill-demanding activities that would employ those left behind in this process. For the above reasons, in the next sections, we look not only at industries that represent a step up in

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<sup>32</sup> Very few apparel companies remain; those that do mostly produce very quality-sensitive lines of clothing, like suits or brassieres. We spoke with the owner/CEO of one such operation, who saw the problem coming and moved his plant to a rural area. Most of his colleagues preferred to move abroad, especially to China.

the complexity scale, but also seek some that are a step down—or that used to be significant activities in Costa Rica and have ceased to be so.

### 3.2. Dominican Republic

The Dominican Republic has proven to be one of the most stable and fastest-growing countries in Latin America. It shares an island with Haiti—the hemisphere’s poorest country—successfully absorbing a sizable immigration from there and managing a complex relationship. It has a fairly diversified economy, with a close link with the United States and, increasingly, with the nations of the Central American Common Market. Like Costa Rica and Panama, a significant portion of its output and currency inflows relates to tourism. On the other hand, 13% of its exports are minerals—mostly gold, nickel, and copper— while the portion coming from agricultural products is far lower than in the other ADD countries.<sup>33</sup>

Like Costa Rica, the Dominican Republic’s initial inroads in manufacturing FDI and exports consisted of apparel and other labor-intensive, low-skill industries. This was later complemented by inroads in more complex industries, specifically in electric products and, especially, medical devices.<sup>34</sup> Unlike its peer, on the other hand, these have proven so far to be indeed complementary rather substitute activities, as the growth in more sophisticated industries has not been accompanied by a drastic contraction of the less complex base.<sup>35</sup> Indeed, 18% of total exports are apparel, footwear, and tobacco products from the zona franca. While of course the different industries compete for the same resources, **there seems still to be interest—and room to grow—in more FDI on both ends of the complexity ladder.**<sup>36</sup>

With about twice the population of Panama and Costa Rica (and unlike them), the Dominican Republic possesses exporting industries with significant increasing returns to

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<sup>33</sup> According to the Central Bank’s balance of payments data for 2022, manufacturing by domestic companies—largely nondurables, raw materials, and chemicals—is roughly 22% of exports.

<sup>34</sup> In 2022, 18% of total exports, or 23% of manufacturing exports, was medical equipment and devices; another 14% was electrical products and jewelry.

<sup>35</sup> FDI and exports, like the population and economic activity in general, are less concentrated geographically than in Costa Rica or Panama—albeit that is not saying much—so the regional variety of business environments and resource availability is to some extent being exploited.

<sup>36</sup> One way to illustrate that the Dominican Republic has maintained—and should aim to maintain—this balance among a variety of industries of different levels of sophistication is to look at its peer countries in the analyses below. Consider for instance Table D.8, which displays the 17 countries most similar in terms of the composition of their manufacturing exports. Comoros, Indonesia, and Egypt are in the Dominican list, but so are the United States, Finland, and Germany. We believe—and the difficulties for Costa Rica in dealing with its “dual economy” seem to confirm our belief— that a heterogeneous country should aim for industries that imply heterogeneous peers.

scale. Therefore, in our analysis in the findings section (page 25), we do not filter out industries with sizable-scale economies, when our methods suggest them for the Dominican case, but we do delete—or lessen in priority—the same industries when they come up for the other two countries.

Another pertinent distinction regarding the Dominican Republic is the potential for growth in the production of textile materials for use in the apparel industry (their own and others in the region). Unlike Costa Rica and Panama, this activity is already present in the Dominican case, although quite possibly far short of its potential. The processes of making the materials to produce clothing, and the confection of the apparel pieces, are very different in terms of the capital needed per worker, the types of skills required, and the critical productive features necessary to succeed. Early in this century, shortly after the accession of China to the World Trade Organization, the region was having difficulties competing with China and other Asian nations that were able to sustain companies in both stages, because the United States was an efficient producer of cloth, but too expensive for most apparel confection, while Central America and some countries of the Caribbean were capable of making apparel competitively but not to supply their own materials. Dominican Republic-Central America free trade agreement's (CAFTA) chapter on apparel market access was designed around this challenge and the need for both U.S. textile and Central American apparel companies to confront this Asian competition. The rules of origin for apparel trade induce a majority of the materials coming from the member nations in order to benefit from the tariff reduction. And while this was originally conceived with U.S. cloth producers in mind, the industrial development that has occurred in the meantime—mainly in the Dominican Republic and Costa Rica, and especially in the former—enables them to participate as well. The market would not only be their own apparel operations, but also those in the rest of the immediate region, including the Northern Triangle and Haiti.

### **3.3. Panama**

Panama is a very peculiar place. The richest country in Latin America according to purchasing power parity-adjusted per capita GDP, its population is also extremely concentrated on the corridor along the Canal, between the city of Colon and the capital of Panama City. The country is blessed with certain key infrastructure—prominently, the canal itself—and a number of large and sophisticated service industries, which generate significant revenue and employment. In Panama we find the corporate headquarters of the immediate region and beyond, its main banking district, and also the hub for its logistics and distribution, including repackaging plants (prominently in medicines).<sup>37</sup> And while the availability of world-class logistics and services locally should represent a

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<sup>37</sup> The Zona Libre de Colon is one of the largest warehouse and multimodal distribution centers in the world. It offers logistical services, and also operates as a hub where much of the immediate region's retailers' source. Indeed, a number of products enter it—or similar operations elsewhere in Panama—and are not only distributed and commercialized wholesale from there, but also undergo repackaging or even some physical transformation.



significant operational advantage for any industrial plant, Panama has gotten to this point of its development with surprisingly little manufacturing. As of 2022, excluding re-exports, 77% of its exports of goods came from mining; almost all the rest were agricultural products and foodstuffs with various degrees of processing.<sup>38</sup>

The premise that has led to the inclusion of Panama in the ADD initiative and its successors, and that also brings us to studying its case in this project is that, while the country has not needed so far to harbor a significant manufacturing export base, the next steps in its economic development would benefit significantly from it.

This poses a dilemma. Should Panama aim—as suggested by the experience of other nations starting out without a manufacturing base—for entry-level manufacturing activities on the lower end of the sophistication scale, as an initial, immediate step? The answer requires understanding the desirability of labor-intensive, low-tech operations, and their feasibility in a country whose wages and other operation costs are affected upwards by high incomes and opportunity cost. Should it instead, exploiting its unique advantages in resources, infrastructure, connectivity, and business climate, attempt to leap-frog into industries of higher complexity? Answering the second question forces one to ponder if it is at all possible to do well in, say, electronics, having never done extrusion or apparel. Panama’s peer list of nations with similar factor endowments (see Table B.9) are, in their majority, much farther along in the development of their manufacturing base.

A final consideration specific to Panama to make here relates to the data regarding the composition of its current manufacturing exports. Because of the logistical and commercial activities occurring in Colon and other facilities, a number of manufactured products are re-exported from Panama; these have not been made there, nor even assembled there, but rather had undergone much simpler transformations, and in some cases just repackaging. Given that other manufacturing exports are so low, those re-exports are a significant portion of the total.<sup>39</sup> This confronted us with the question of whether those products should be considered in our analysis or not. In the end, we opted for including them, partly for symmetry—to use the same database as in the other two ADD countries—and partly in response to our experience that often companies engage in the production of services from places in which they already operate in manufacturing, and the move in the opposite direction may also be feasible.

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<sup>38</sup> In December 2023, and after a very large popular uprising, decisions were made that could lead the controversial mining operations—of copper and gold—to cease in the near future.

<sup>39</sup> Including, prominently, medicaments, the top export according to Table F.3.

## 4. Main Results

Applying the methods described in the methodology section (page 9) leads to a long list of industries, shown in detail in Tables A.1–D.12, that constitute potential industries in which each ADD nation may find opportunities to expand its FDI, exports, and involvement in GVCs. Those lists are, of course, in some sense too long to maneuver, and hence we need to apply our filtering criteria—and common sense—to narrow them down into something more usable. Even narrowing the analysis to the industries that come up through multiple methods/countries/products, we still need to filter these industries to a short, manageable, and compartmentalized.

In this section, we separately analyze the results for the three ADD nations, taking into account the differences in their conditions and objectives, as outlined in the previous section. We go through the different methods one by one and highlight what we consider are the worthiest recommendations. In so doing, we visit several aspects of these lists.

- Some recommended sectors are industries (at the six-digit level) that are parts of chapters (at a two-digit level) in which the country already produces significantly. While there is no guarantee that moving between two activities in the same group is easy—products can be very similar, and thus belong to the same group, even if the processes to make them, and thus the skills needed, are very different—yet one can probably expect that in many cases it is more feasible. A clustering logic may apply in many cases at some level.
- Some recommended sectors are already significant exporting industries, with very high RCA levels, confirming rather than adding to our analysis. We largely ignore these lines in what follows—the feasibility of what already exists hardly needs to be argued—although it is comforting that these lines often emerge.<sup>40</sup>
- In some methods, proximity varies across the list of industries, or across the list of countries that export those industries, and of course more proximate industries or countries should imply more relevant opportunities.
- As mentioned before, some industries emerge from several—in some cases all—the methods and time frames utilized. We believe that the number of methods (or countries, or paths) that lead to the same conclusion is a relevant indicator of trust on the viability of the industry in question. Nevertheless, in some isolated cases, we highlight industries

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<sup>40</sup> How could these industries even emerge from the analysis? Consider for instance country C whose significant exports include two goods, A and B. Of course, a method that starts with the fact that A is exported does not lead to A being a recommended new industry. But perhaps the good B is a prominent export of another country D that is very close to C, and D also happens to export lots of A. Then, the method is starting with B and offering A as a—redundant—result.

that emerge from only one of the methods, if it does so in a way that appears revealing or interesting.

- The degree of complexity of the different industries recommended is of course very relevant, as some may help move up the ladder of sophistication, and some others to merely diversify exports on the same rung of the ladder. Even products that show lower complexity may be relevant in countries with significant quantities of human resources that cannot aspire to work in the most complex activities. These kinds of industries satisfy different national objectives, which are in turn differently important for each ADD nation.

We now proceed to study the results country by country. A number of ideas and definitions shall be posed in the first case (alphabetically, Costa Rica), so the analysis for the Dominican Republic and Panama will be presented far more smoothly once we get the language out of the way.

#### **4.1. Costa Rica**

Costa Rica already has a somewhat sophisticated and diversified, but patchy, industrial composition. As a starting point, notice that the majority of current exports—the main lines listed in Table F.1— are distributed among 16 groups or Harmonized System (HS) chapters; within those groups, they are often very concentrated within one or two industries.<sup>41</sup> Before studying the results from each method of identification more specifically, we look first at the top lines in Table 3, which have the characteristic that they keep coming up through a majority of methods in both time frames and in multiple ways.

By illustration, note industry 854211, Monolithic integrated circuits, digital, which tops the table.

This industry, on which Costa Rica already produces a little in 2019 (only 10% of the global average participation of that industry in total exports), comes up through all seven methods: it is proximate in the product space to several current top exports; it is an important current industry in several countries that have today or had 15 years ago similar factor endowments to Costa Rica's today; also in several countries that have or had some other key products in common with Costa Rica; finally, in several countries that have or had a similar overall export profile. The "several" in the previous sentence add up to 64; the proximate countries involved add up to 17. So, looking at this issue from so many different ways, this industry (and several others) keeps popping up. And,

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<sup>41</sup> We use "chapter" here, in accordance with convention, to refer to sectors grouped at a two-digit HS level; "industry" is used to refer to the much narrower six-digit categories.

more notably, these methods do not know—they could not from 2019 data, when Intel was not operating its manufacturing plant in Costa Rica—that this industry is already important there.<sup>42</sup> In other words, and we find that this validates our methods very strongly, we asked them what industry should the country focus on for FDI and export promotion purposes, and the answer that came back repeatedly was an industry whose viability has been proven in practice, and eloquently, before and after the period of analysis, and for years was Costa Rica’s most emblematic export.

**Table 3. Main Results for Costa Rica (ECI = 0.3591)**

Industry code	Industry name	Methods	Countries	Paths	PCI-ECI	RCA
854211	Monolithic integrated circuits, digital	7	17	64	0.8105	0.1068
847330	Parts of data processing equipment	7	12	36	0.7166	0.1538
610910	T-shirts, of cotton, knit	7	6	15	-2.2690	0.0194
853620	Automatic circuit breakers, <1kV	7	1	7	-0.1431	0.4686
300490	Medicaments, doses, n.e.s.	6	26	100	0.1194	0.4894
852520	Transmit-receive apparatus for radio, TV	6	21	49	0.2878	0.0165
854430	Ignition sets for vehicles/aircraft/ship	6	10	14	-1.5001	0.1243
852810	Color TV receivers/monitors/projectors	6	7	16	-0.4779	0.0511
880330	Aircraft parts n.e.s.	6	6	10	0.4129	0.0537
850440	Static converters, n.e.s.	6	4	5	0.6261	0.0958
847191	Digital computer CPU, some storage/input/output	6	3	13	1.0067	0.0176
870899	Motor vehicle parts n.e.s.	5	7	12	0.4401	0.3285
852990	Parts for radio/TV transmit/receive equipment	5	5	8	0.0156	0.0759
852390	Unrecorded sound recording media	5	3	6	1.1623	0.1316
401110	Rubber tires, cars, new	5	3	6	0.2069	3.4021
300439	Hormones, not contraceptive, doses	5	2	9	0.8592	0.1502
854140	Photosensitive/PV/LED semiconductor device	5	2	8	0.7109	0.049
851782	Telegraphic apparatus, n.e.s.	5	1	7	-0.3012	0.0036
392690	Plastic articles, n.e.s.	5	1	1	0.2344	1.9143

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<sup>42</sup> Intel’s main output at its Costa Rica campus is concentrated on industries 854219 and 854211—that is, monolithic integrated sectors of both kinds.

620342	Men's trousers & shorts, cotton, not knit	4	8	12	-2.1048	0.0441
851790	Parts of telephone line equipment	4	5	7	0.7365	0.1031
841112	Turbo-jet engine, >25 KN	4	4	9	0.4322	0.0263
870829	Parts of motor vehicle bodies	4	4	6	0.6416	0.0115
382390	Chemical products, n.e.s.	4	4	4	-0.6185	0.1571
520100	Cotton, not carded/combed	4	4	4	-2.7954	0.0172
870840	Transmissions for motor vehicles	4	3	8	1.1853	0.0021
853710	Electrical control & distribution boards, <1kV	4	3	4	0.2343	0.197
640399	Footwear, uppers of leather, n.e.s.	4	3	4	-1.2615	0.016
620462	Women's trousers & shorts, cotton, not knit	4	3	4	-2.3084	0.0088
690790	Unglazed ceramic tiles, >7cm wide	4	3	3	-0.9845	0.1309
611020	Pullovers, cardigans, of cotton, knit	4	3	3	-2.2755	0.0035
300220	Vaccines, human	4	2	19	0.2638	0.0027
620520	Men's shirts, cotton, not knit	4	2	5	-2.1342	0.0123
310420	Potassium chloride, >10kg	4	2	3	-1.2663	0.0519
640391	Boots, upper of leather, n.e.s.	4	2	3	-1.3437	0.0423
630260	Toilet/kitchen linen, of terry	4	2	3	-1.8801	0.0925
901020	Equipment for photographic laboratories n.e.s.	4	1	12	1.4356	0.0223
521213	Cotton fabric, <200g/m2, dye, n.e.s.	4	1	1	-1.5009	0
841191	Turbo-jet, -propeller engine, parts	3	5	7	0.5755	0.0005

Industry code	Industry name	Methods	Countries	Paths	PCI-ECI	RCA
310210	Urea, >10kg	3	4	4	-1.2599	0.0581
950390	Toys n.e.s.	3	3	5	-0.1422	0.0255
290511	Methyl alcohol	3	3	3	-1.5774	0.0007
840734	Engines, spark-ignition, >1000cc	3	2	4	1.1248	0.0001
847193	Computer data storage units	3	2	4	0.5553	0.0155
330499	Make-up, n.e.s.	3	2	4	-0.1892	0.1069
847199	Automatic data processing machines	3	2	3	0.7549	0.0276
940190	Parts of seats	3	2	2	-0.5390	0.0422

283620	Disodium carbonate	3	2	2	-0.9422	0
293379	Lactams, n.e.s.	3	1	11	1.5707	0.0004
330210	Mixed odors, food & drink	3	1	11	-0.5681	2.6304
850230	Electric generating sets, n.e.s.	3	1	4	0.5618	0.0043
853400	Electronic printed circuits	3	1	4	0.0262	0.1235
300431	Insulin, doses	3	1	4	0.0199	0
280920	Phosphoric acid	3	1	2	-0.8305	0.0166
611420	Garments n.e.s., of cotton, knit	3	1	2	-2.1133	0.0754
611030	Pullovers, cardigans, of manmade fibers, knit	3	1	2	-2.3283	0.0489
853224	Electric capacitors, ceramic, multilayer	3	1	1	1.0356	0.0099
854129	Transistors, >1 watt	3	1	1	0.9462	0.0107
300390	Medicaments, formulated, n.e.s.	3	1	1	0.2270	0.2462
610990	T-shirts, of material n.e.s., knit	3	1	1	-2.2161	0.0611

Following this notion of giving priority to industries that result from looking at proximity to Costa Rica and its current exports through multiple methods and time frames, and following multiple countries and paths, we consider now the 35 industries at the top of Table 3—excluding those lines that already show a high RCA—and group them by chapter. We find that more than half of these are in 6 of the 16 chapters that concentrate current exports, as shown by Table 4. This is of course important, because of the phenomenon we called “clustering” before: if public and private capabilities share more similarities within each chapter than across chapters, authorities may be well advised to focus their efforts on those chapters with more new opportunities associated with them. And even if sharing a chapter with an existing industry does not imply higher feasibility, there may be other agglomeration advantages of producing similar goods—among other things, because it is always easier to convince a company to bring a new product to a location if it is already successfully producing something else there.

**Table 4. Count of New Opportunity Industries for Costa Rica**

Type of Opportunity	Industries
New opportunities in current chapters	19
New opportunities in new chapters	16
Total of new opportunities	35

Of those, most happen to be in Chapter 85, Electrical machinery and equipment, and a couple each for knit apparel, cotton, and pharmaceutical products (Table 5).

**Table 5. Number of Opportunities by Current Chapters for Costa Rica**

Chapter Number	Chapter Name	Opportunities
85	Electrical machinery and equipment	11
61	Apparel, knit	2
52	Cotton	2
30	Pharmaceutical products	2
90	Optical, photographic	1
89	Ships	1

What about the 16 industries that we labeled “new opportunities in new chapters”—that is, belonging to chapters that are currently not significantly exported from Costa Rica? Table 6 shows that these are far less concentrated, although apparel, parts of vehicles, and, most relevantly, Chapter 84, Boilers, machinery and appliances.

**Table 6. Number of Opportunities by New Chapters for Costa Rica**

Chapter Number	Chapter Name	Opportunities
62	Apparel, not knit	3
84	Boilers, machinery and appliances	3
87	Vehicles	3
64	Footwear	2
88	Aircraft	1
69	Ceramic	1
31	Fertilizers	1
38	Misc. Chemicals	1
63	Other made up textile articles	1

The chance to grow in new industries within Chapters 84 and 85 will keep coming up in the next few pages (a specific listing comes up later in this chapter). This type of product typically requires talent spread across several types, rather than concentrated in one particular skill, so the labor availability is less stringent than in other industries; the country also has nearly three decades of experience in coming up with creative ways to tackle the scarcity of skills in electronics, more than in other industries.

The following is a summary of the most salient opportunities identified so far in the analysis.

- As mentioned above, there may be significant opportunity in industries within Chapters 84 and 85. This includes the pursuit of other companies in the aforementioned Monolithic integrated circuits (854211 and 854219), although this is hardly something that needs reminding, given that this industry has been very important and emblematic for the country for decades, since Intel started making microchips there in the late 1990s. The company remained in the country doing R&D and support services, but stopped manufacturing operations between 2015 and 2022, including the year in which our data are based. We have observed a gradual and significant recovery of exports of monolithic integrated circuits after the pandemic. At some point in the past, the Costa Rican FDI attraction agencies gave priority to completing Intel’s cluster—that is, competing companies, vertical integration backwards, suppliers and ancillary services—only to find out that the low transportation cost of microchips and microchip components imply that geographic proximity is not as critical as in other activities, and that vertical integration was unfeasible due to a very scarce supply of the essential kinds of labor. But this is perhaps not the only way to skin this cat, and rather than clustering around microchips, perhaps more attention should be given to looking elsewhere in these closely related groups, which contain different levels of complexity and the need for an assortment of labor qualifications that could be more easily available.
- Industries with intermediate levels of complexity, in some of which there is already a little bit of exports, and that are clearly feasible, requiring labor that is not of the scarcest types:
  - Automatic circuit breakers over 1kv (853620)
  - Transmit and receive apparatus for radio & TV (852520)
  - Parts for radio/TV transmit/receive equipment (852990)
  - Automatic data processing machines (847199)
  - Electrical control and distribution boards (850230)
  - Electronic printed circuits (853400)
- “Reaches,” i.e. industries with higher complexity and demanding more qualified resources than the average in the country, but still, in our opinion, feasible and, more importantly, with some production and exports already taking place in Costa Rica:<sup>43</sup>
  - Parts of data processing equipment (847330)

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<sup>43</sup> We are choosing to leave behind Spark ignition engines >1000cc, as well as Parts of motor vehicle bodies and Transmissions for motor vehicles, despite the fact that they also pop up prominently in Table E.1, as they seem a kind of heavy industry that is currently too far, especially given scale economies and the size of the country. However, general Aircraft parts (880330), Motor vehicle parts (870899) and Turbo-jet or propeller engine parts (841191) would seem to be of interest, and already are produced in small quantities in Costa Rica.



- Unrecorded sound recording media (852390)
- Static converters (850440)
- Digital computer CPU with some storage/input/output (847191)
- Photosensitive/PV/LED semiconductor devices (854140)
- Parts of telephone line equipment (851790)
- Computer data storage units (847193)
- Automatic data processing machines
- perhaps Electric capacitors, ceramic multilayer (853224), or Equipment for photographic laboratories (901020)
- Lower-tech industries, perhaps viable in areas of less development in the country, and which employ large amounts of unqualified labor:
  - Color TV receivers and monitors (852810)
  - Telegraphic apparatus (851782)
  - certain automobile parts, including Ignition sets (854430)
- As mentioned on page 19, the Costa Rican FDI attraction policy is currently broadening its focus to include industries with these characteristics, aiming at redirecting manufacturing activity to regions of lower development.
  - There are clearly opportunities in the pharmaceutical sector, prominently:
    - Medicaments and doses (300490)
    - Non-contraceptive hormones (300439)
    - **Vaccines** (300220)
    - perhaps Insulin doses (300431) or Not specified formulated medicaments (300390).

As mentioned before, although these activities by PCI alone would look like complexity enhancing, Costa Rica already has several domestic companies that manufacture and export pharmaceutical products, largely generics but also a few originals, so this could be a lateral movement. At first light, FDI to produce medicines does not seem that attractive. It is an activity with enormous capital-labor ratios and profit rates, so it is easy to reach high numbers of gross exports and GDP contributions, but—as capital and equity are foreign by definition in this case—small additions to employment or national income. But this is not the best way to look at this industry. First, because some of its lines (formulated medicaments, for instance) do have a larger domestic value added, while others (medical devices with pharmacological contents) have been explored in the past combine with the already well-established industry of medical equipment, the main export in the country. Second, because connected to this industry are other processes (logistics, packaging, etc.) that do create many jobs, and others (notably, R&D) that are

high tech but something Costa Rica has happened to do well in the past.<sup>44</sup> Pharma MNCs also have significant demand for shared services, of the kind that are also quite successful in the country already.

- A number of apparel industries show up very prominently in Table 3, including:
  - T-shirts, knit, cotton (610910)
  - Men’s trousers, cotton, not knit (620342)
  - Women’s trousers (620462)
  - Pullovers and cardigans of cotton (611020)
  - Men’s shirts, cotton, not knit (620520)
  - Linen, of terry (630260)

As mentioned before, Costa Rica was, a few decades ago and before the rest of the immediate region, a significant exporter for many of these activities, which got crowded out from the highly productive portions of the geography and labor force by advanced manufacturing. Perhaps much more effort should have been applied in the past to shifting these factories elsewhere in the country rather than losing them altogether. These are the lowest-hanging fruits to create formal jobs for unqualified labor and manufacturing for regions outside the Central Valley. It is a double challenge. Mentally, because once the country produces pacemakers and CPUs, it is difficult to get excited over t-shirts; practically, because—under the current levels of real exchange rate, minimum wages and other regulatory restrictions (calibrated for, or at least influenced by, advanced manufacturing and sophisticated services)—competing in the ultimate industry for low-income countries will not be easy. However, time and again, apparel came up as a type of good that has high proximity to Costa Rica; that fact, combined with some policy, should prevail in the end.

Connected to apparel, Table 3 also contains one line of textile materials, **Cotton, not carded or combed** (520100), and several lines of footwear with uppers of leather, which may be relevant.

- Some chemical processes, on the low end of the complexity scale and materially feasible in Costa Rica, also come up as low-hanging fruits, including:
  - Potassium chloride (310420)
  - **Urea** (310210)
  - Methyl alcohol (290511)

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<sup>44</sup> For several years, research in pharma, including testing, was performed successfully in Costa Rica, and there is an interesting talent pool for that purpose. At some point, last decade, regulations were introduced that drove out those activities. This policy, obviously detrimental, could be fixed.

- Disodium carbonate (283620)
- Not specified make-up (330499)
- Not specified chemical products (382390)

We now look for what else we can learn as we explore the Costa Rican results method by method.

Table A.1 displays the most proximate industries to Costa Rica’s main manufacturing exports according to our estimation of the product space based on the AEC methods, at a six-digit level. Of course, some of the activities that come up are just processing agricultural products, and many would be repetitions from the previous analysis. We notice, however, the high proximity of several lines not mentioned already, which all happen to be in Chapter 85 (as many of the results before), and we consider worth mentioning:

- Parts of semiconductor devices (854190)
- Parts of integrated circuits (854290)
- Semiconductor devices, not light sensitive (854150)
- Lenses for camera or projector (900211)
- Parts and accessories for recorders (852290)

Table 7 ranks the key industries by their complexity PCI, as compared to the country’s ECI. Notably, again, many of the most complex industries in the table are concentrated around Chapter 85.

While of course there is significant overlap between the results across all four methods, one interesting observation is that, with very few exceptions, this method proposes a far less complex list of products— more than half under Costa Rica’s ECI. This makes sense when we look at the countries coming up from this method in Table B.7. Costa Rica’s peers in this case do not include a single developed country. China and Mexico are on the list—relevant, since nearshoring could be trivialized as being about competing with the latter for firms that leave the former—as well as a few high-growth countries, like Vietnam and Botswana, and several “middle of the pack” places in Latin America. This list reminds us that perhaps one should take with caution the temptation of seeking mostly for industries that represent further jumps in PCI, as perhaps that potential has been largely exploited, and hence the scarcity of the key talent at a moment of low employment for the country as a whole. Interestingly, the Dominican Republic is on Costa Rica’s list (and, of course, vice versa).

The products suggested by methods 3 and 4 are somewhat more sophisticated, as the corresponding lists of countries (Tables C.7 and D.7) are far more developed. Costa Rica has the resources of a middle- income country and a patchy version of the industrial composition of a high-income country. Second, perhaps it is noteworthy that there are

six opportunities (three of which are in Chapter 85) that were identified using both time frames, but there were more paths leading to them in the concurrent analysis.

**Table 7. Top 20 Potential Export Industries for Costa Rica with Highest Complexity Index (Method 1)**

Chapter no.	Chapter name	HS code	HS name	PCI-ECI
85	Electrical machinery and equipment	854121	Transistors, <1 watt	1,2568
85	Electrical machinery and equipment	854290	Parts of electronic integrated circuits	1,1585
85	Electrical machinery and equipment	853224	Electric capacitors, ceramic, multilayer	1,0356
85	Electrical machinery and equipment	854129	Transistors, >1 watt	0,9462
85	Electrical machinery and equipment	853222	Electric capacitors, aluminium electrolytic	0,9343
85	Electrical machinery and equipment	854150	Semiconductor devices, not light sensitive	0,9015
84	Boilers, machinery and appliances	841950	Heat exchange units, non-domestic	0,8455
85	Electrical machinery and equipment	853390	Parts of electrical resistors, rheostats	0,7977
90	Optical, photographic	903190	Parts/access for measuring equipment	0,7927
85	Electrical machinery and equipment	854190	Parts of semiconductor devices	0,7868
90	Optical, photographic	902990	Parts/accessories of revolution counters	0,7389
84	Boilers, machinery and appliances	847330	Parts of data processing equipment	0,7166
85	Electrical machinery and equipment	854140	Photosensitive/PV/LED semiconductor device	0,7109
85	Electrical machinery and equipment	853321	Electrical resistors fixed, <20W	0,6351
85	Electrical machinery and equipment	850440	Static converters, n.e.s.	0,6261
85	Electrical machinery and equipment	853890	Parts of elect switches, protectors	0,6195

84	Boilers, machinery and appliances	843139	Parts of lifting/handling machinery n.e.s.	0,6192
85	Electrical machinery and equipment	853610	Electrical fuses, <1kV	0,6098
90	Optical, photographic	900211	Lenses for camera or projector	0,5803
85	Electrical machinery and equipment	851220	Lighting/visual signalling equipment	0,5778

## 4.2 Dominican Republic

The Dominican Republic's industrial composition is in a way less sophisticated, but also far less patchy. Perhaps the best illustration of this last point is the fact that there are 14 lines in Table F.2 with RCA levels significantly above 1, or, in other words, that many more industries proximate to what they have are also there already. In that sense, there is less that is new, and more that is just a confirmation of our methods, in each table. The largest current exports are concentrated in Chapter 90, Medical devices (see Table F.2). Also very prominent are several chapters that are lower in the complexity scale and relate to apparel: Chapter 62, Apparel, no knit; Chapter 63, Other made up textiles; and Chapter 64, Footwear. Chapter 71, Precious metals is also among the top exports.

Dominican current top exports are distributed among 15 chapters, and eight of those industries present new opportunities as well. We identified a total of 30 new opportunities, 18 of which are associated with current chapters, and 12 with new ones (see Table 9).

Following the same clustering logic, we look first at the new opportunities in existing chapters,<sup>45</sup> which are very concentrated (see Table 10), as before, in Chapter 85. The Dominican Republic and Costa Rica probably are mostly competitors—but also in some ways could complement or supply each other—in these industries.

The distribution of new opportunities not associated with current chapters is presented in Table 11. This distribution is concentrated in chapters that can be associated with advanced manufacturing skills: 8 out of 12 new opportunities are distributed among Chapter 84, Boilers, machinery and appliances; Chapter 87, Vehicles; and Chapter 69, Aircraft. Considering that opportunities associated with current chapters, presented in Table 10, are clustered around Chapter 85, Electric machinery, the concentration of new opportunities in chapters that include high PCI activities is quite remarkable. This initial

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<sup>45</sup> We again first delete those industries where the RCA is already very high.

analysis confirms the intuition that the Dominican Republic has done a better job than others in maintaining the job-intensive industrial base, and therefore can focus its energy in moving up the scale. This is illustrated in Table 12, where we group the most promising industries by chapter and show in which of those we are looking at steps toward higher complexity.<sup>46</sup> A majority of these lines are indeed activities that require more sophisticated labor and processes than the current industries, and yet that our analyses suggest are well feasible.

To summarize the most important opportunities identified at this point:

- Arguably the biggest opportunities are, again, in equipment and machinery, largely—but not solely—concentrated in Chapters 84 and 85. For instance, two activities that are not complex and emerge across all methods and many paths are:
  - Ignition sets for vehicles
  - Electric conductors under 80V, with connectors (854441)
- Higher in sophistication, but still seemingly in the feasible range:
  - Color TV receivers/monitors/projectors (852810)
  - Transmit and receive apparatus for radio & TV (852520)
  - Motor vehicle parts (870899)
  - Aircraft parts (880330)
  - Parts of motor vehicle bodies (870829)
  - Automatic data processing machines (847199)
  - Electrical control and distribution boards under 1kV (853710)
  - Parts for radio/TV transmit/receive equipment (852990)
- Other similar industries are also presented as opportunities but should represent quite a reach in terms of complexity:
  - Monolithic integrated circuits, digital (854211)
  - Parts of data processing equipment (847330)
  - Digital computer CPU w. storage/input/output (847191)
  - Turbojet or propeller engine parts (841191)
  - Transmissions for motor vehicles (870840)
  - Unrecorded sound recording media (852390)
  - Photosensitive/PV/LED semiconductor devices (854140)
- While the Dominican apparel sector is large and varied, some lines within it are among our lowest-hanging fruits and are still underrepresented (RCA <1), including:
  - Men's and women's trousers, cotton (620342, 620462 and 61063)
  - Men's shirts, cotton, knit or not (610510 and 620520)

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<sup>46</sup> The equivalent to this table is not shown in the case of Costa Rica as it seemed to add little to the analysis.

- Linen for toilet or kitchen, terry (630260)
  - Women's briefs and panties, cotton (610821)
- As mentioned before, Cotton, not carded/combed (520100) and perhaps other cloth or apparel materials are particularly relevant for the Dominican Republic, not only to supply their own but also other apparel plants in the immediate region.
- The pharmaceutical sector, proportionally smaller in the Dominican Republic than in Costa Rica, also emerges strongly from our summary analysis, including prominently:
  - Medicaments doses (300490)
  - Non contraceptive hormones (300439)
  - Formulated medicaments (300390)
- Several miscellaneous industries (in that they belong to very different chapters) also are important results at this point in the analysis, including some chemical products of low complexity:
  - Phosphoric acid (280920)
  - Urea (310210)
  - Disodium carbonate (283620)
  - Potassium chloride (310420)
- Among other relevant lines of mid-complexity, large-scale manufactures in Table 8, we find of interest:
  - Rubber tires for cars (411110)
  - Unglazed ceramic tiles (690790)
  - Glass containers (701090)

As in the case of Costa Rica, we now look for other lessons for the Dominican Republic in the application of the individual methods. As before, we start with the list of products of highest proximity in the AEC

to the current exports (Table A.2). In this case, we do not learn much, as among the top 20 results, 19 are either in apparel or footwear. The only exception is in tobacco. All of these industries are complexity reducing. This suggest that the Dominican Republic has no easy choices, at least in the Hausmann proximity sense. The other, non-apparel activities mentioned above are feasible, according to various criteria, but represent longer leaps over product space. If the country aspires to increased complexity, it

will face harder challenges than Costa Rica, where half of the closest opportunities identified through the Hausmann method are complexity enhancing.

Ranking now among the results of Table A.2 by degree of complexity (going further down the list in terms of proximity), we obtain Table 13, partially confirming the same findings, but putting up at least five more products that would be going up the ladder:

- Keys and lock parts, metal (830160 and 830170)
- Metal fittings for buildings (830241)
- Electrical circuit protectors (853630)
- Antibiotics doses (300420)

**Table 8. Main Results for the Dominican Republic (ECI = -0.2429)**

Industry Code	Industry Name	Methods	Countries	Paths	PCI-ECI	RCA
620342	Men's trousers & shorts, cotton, not knit	7	11	28	-1.7457	0.5632
854430	Ignition sets for vehicles/aircraft/ship	7	10	21	-1.1410	0.0684
300490	Medicaments, doses, n.e.s.	6	28	69	0.4785	0.1696
852520	Transmit-receive apparatus for radio, TV	6	17	39	0.6469	0.0679
854211	Monolithic integrated circuits, digital	6	12	31	1.1696	0.002
847330	Parts of data processing equipment	6	9	20	1.0757	0.0044
620462	Women's trousers & shorts, cotton, not knit	6	7	17	-1.9493	0.2244
870899	Motor vehicle parts n.e.s.	6	7	11	0.7992	0.2074
520100	Cotton, not carded/combed	6	7	9	-2.4363	0
852810	Color TV receivers/monitors/projectors	6	6	20	-0.1188	0.0169
880330	Aircraft parts n.e.s.	6	5	8	0.7720	0.0012
610510	Men's shirts, cotton, knit	6	3	7	-1.8315	0.2618
611020	Pullovers, cardigans, of cotton, knit	5	8	21	-1.9164	3.6443
611030	Pullovers, cardigans, of manmade fibers, knit	5	7	20	-1.9692	1.8708
610990	T-shirts, of material n.e.s., knit	5	7	17	-1.8570	3.2058
401110	Rubber tires, cars, new	5	7	8	0.5660	0.0102
620520	Men's shirts, cotton, not knit	5	5	10	-1.7751	0.9954
870829	Parts of motor vehicle bodies	5	5	9	1.0007	0.0446
847191	Digital computer CPU, some storage/input/output	5	3	14	1.3658	0.0009
280920	Phosphoric acid	5	2	3	-0.4714	0.0153
901839	Medical needles, catheters	5	1	10	0.1805	5.1652
901890	Instruments for medical science, n.e.s.	5	1	9	0.2490	19.2792
902130	Artificial body parts, aids	5	1	8	0.3247	0.1188



841191	Turbo-jet, -propeller engine, parts	4	5	9	0.9346	0.0008
310210	Urea, >10kg	4	4	4	-0.9008	0.1757
870840	Transmissions for motor vehicles	4	3	6	1.5444	0.0024
640399	Footwear, uppers of leather, n.e.s.	4	3	6	-0.9024	2.2519
852390	Unrecorded sound recording media	4	3	4	1.5214	0.0097
630260	Toilet/kitchen linen, of terry	4	2	5	-1.5210	0.0238
300439	Hormones, not contraceptive, doses	4	2	4	1.2183	0.0248
847199	Automatic data processing machines	4	2	4	1.1140	0.2385
854140	Photosensitive/PV/LED semiconductor device	4	2	4	1.0700	0.2307
853710	Electrical control & distribution boards, <1kV	4	2	4	0.5934	0.0698
610821	Women's briefs or panties, cotton, knit	4	2	4	-1.4185	0.0327
283620	Disodium carbonate	4	2	2	-0.5831	0.0044
690790	Unglazed ceramic tiles, >7cm wide	4	2	2	-0.6254	0.0333
851782	Telegraphic apparatus, n.e.s.	4	1	9	0.0579	0
610910	T-shirts, of cotton, knit	3	7	20	-1.9099	17.7484
950390	Toys n.e.s.	3	3	6	0.2169	0.1046

Industry Code	Industry Name	Methods	Countries	Paths	PCI-ECI	RCA
852990	Parts for radio/TV transmit/receive equipment	3	3	3	0.3747	0.0162
701090	Glass containers for packing goods	3	3	3	-0.4710	0.0121
330499	Make-up, n.e.s.	3	2	7	0.1699	0.0539
610462	Women's trousers & shorts, of cotton, knit	3	2	7	-2.0954	0.0365
851790	Parts of telephone line equipment	3	2	5	1.0956	0.0197
940190	Parts of seats	3	2	3	-0.1799	0.0041
310420	Potassium chloride, >10kg	3	2	3	-0.9072	0.1061
901020	Equipment for photographic laboratories n.e.s.	3	1	7	1.7947	0.0003
610463	Women's trousers & shorts, synthetic fibers, knit	3	1	7	-1.9116	1.0519

902190	Orthopaedic appliances, n.e.s.	3	1	6	0.6875	1.2415
610520	Men's shirts, manmade fibers, knit	3	1	6	-2.2362	0.3535
854441	Electric conductors <80V, with connectors	3	1	5	-0.2322	1.5881
640391	Boots, upper of leather, n.e.s.	3	1	5	-0.9846	10.5421
640610	Footwear uppers	3	1	5	-1.3223	10.7509
901819	Electro-diagnostic apparatus	3	1	4	0.8239	7.1941
620343	Men's trousers & shorts, synthetic fiber, not knit	3	1	4	-1.6887	3.972
853890	Parts of elect switches, protectors	3	1	3	0.9786	0.77
640340	Footwear, uppers of leather, metal toe-cap	3	1	3	-1.1083	11.9861
848180	Taps, cocks, valves, appliances, n.e.s.	3	1	2	1.3230	0.0653
390410	Polyvinyl chloride	3	1	2	0.7215	0.0043
300390	Medicaments, formulated, n.e.s.	3	1	2	0.5861	0.0278
401290	Tires, interchangeable treads	3	1	2	0.3285	0.0351
850211	Generating sets, diesel, <75kVA	3	1	2	-0.7370	0.9827
611610	Gloves impregnated with plastic/rubber, knit	3	1	2	-1.2721	0.132
621210	Brassieres	3	1	2	-1.5063	8.1762
611490	Garments n.e.s., of materials n.e.s., knit	3	1	2	-1.6279	0.0807
610822	Women's briefs or panties, manmade fiber, knit	3	1	2	-1.6976	4.875
611420	Garments n.e.s., of cotton, knit	3	1	2	-1.7542	0.1209
690220	Refractory bricks, >50% alumina, silica	3	1	1	0.1513	0.002
280700	Sulfuric acid, oleum	3	1	1	0.0804	0.0033

**Table 9. Count of New Opportunity Industries for Dominican Republic**

Type of Opportunity	Industries
New opportunities in current chapters	18
New opportunities in new chapters	12
Total of new opportunities	30

**Table 10. Number of Opportunities by Current Chapters for Dominican Republic**

Chapter number	Chapter name	Opportunities
85	Electrical machinery and equipment	8
62	Apparel, not knit	3
61	Apparel, knit	2
52	Cotton	1
31	Fertilizers	1
90	Optical, photographic	1
63	Other made up textile articles	1
30	Pharmaceutical products	1

**Table 11. Number of Opportunities by Not Current Chapters for Dominican Republic**

Chapter Number	Chapter Name	Opportunities
84	Boilers, machinery and appliances	4
87	Vehicles	3
28	Inorganic chemicals	2
88	Aircraft	1
69	Ceramic	1
40	Rubber	1

**Table 12. PCI-ECI for New Opportunities in Dominican Republic**

Chapter Number	Chapter Name	HS Code	PCI-ECI
28	Inorganic chemicals	280920	-0.2285
28	Inorganic chemicals	283620	-0.3402
30	Pharmaceutical products	300439	1.4612
31	Fertilizers	310210	-0.6579
40	Rubber	401110	0.8089
52	Cotton	520100	-2.1934
61	Apparel, knit	610510	-1.5886
61	Apparel, knit	610821	-1.1756
62	Apparel, not knit	620342	-1.5028
62	Apparel, not knit	620462	-1.7064
62	Apparel, not knit	620520	-1.5322

63	Other made up textile articles	630260	-1.2781
69	Ceramic	690790	-0.3825
84	Boilers, machinery and appliances	847330	1.3186
84	Boilers, machinery and appliances	847191	1.6087
84	Boilers, machinery and appliances	841191	1.1775
84	Boilers, machinery and appliances	847199	1.3569
85	Electrical machinery and equipment	854430	-0.8981
85	Electrical machinery and equipment	852520	0.8898
85	Electrical machinery and equipment	854211	1.4125
85	Electrical machinery and equipment	852810	0.1241
85	Electrical machinery and equipment	852390	1.7643
85	Electrical machinery and equipment	854140	1.3129
85	Electrical machinery and equipment	853710	0.8363
85	Electrical machinery and equipment	851782	0.3008
87	Vehicles	870899	1.0421
87	Vehicles	870829	1.2436
87	Vehicles	870840	1.7873
88	Aircraft	880330	1.0149
90	Optical, photographic	902130	0.5676

### 4.3 Panama

Panama's economy, as mentioned before, is far richer than its two traveling companions, and overall somewhat sophisticated; yet in terms of manufacturing, it is barely getting going. Prominent among its exports in the database (see Table F.3) are medicaments (340490), but in the complex and multistage process of putting pharmaceutical products in the market, Panama's contribution is fairly concentrated in only a few steps. It is possible that, as the database has gross exports, the heavy concentration in this line is biasing the results.

The top current exports—small as they are—are concentrated within 12 HS chapters. Consider now the top results from our methods, shown in Table 14. While the top 29 new opportunities identified are distributed among 7 current and 7 new chapters. With a similar logic to the previous two cases, the distribution of new opportunities across current and new chapters is presented in Table 15. Nineteen new opportunities are associated with current chapters, and the remaining 10 are associated with new chapters.

The number of opportunities associated with each current chapter is presented in Table 16, where readers will recognize a familiar pattern: the largest number of new opportunities is associated with Chapters 84 and 85. This is similar to what we observed for Costa Rica and the Dominican Republic. One should also highlight the relevance of apparel and footwear.

**Table 13. Top 20 Potential Export Industries for Dominican Republic with Highest Complexity Index (Method 1)**

Chapter No.	Chapter Name	HS Code	HS Name	PCI-ECI
83	Miscellaneous articles of base metal	830170	Keys, metal	1.3474
83	Miscellaneous articles of base metal	830160	Lock parts, metal	1.0225
83	Miscellaneous articles of base metal	830241	Fittings for buildings, metal	0.6992
85	Electrical machinery and equipment	853630	Electrical circuit protectors, <1kV	0.5000
30	Pharmaceutical products	300420	Antibiotics, doses, n.e.s.	0.2174
64	Footwear	640399	Footwear, uppers of leather, n.e.s.	-0.6595
64	Footwear	640510	Footwear, n.e.s., uppers leather	-0.7168
64	Footwear	640391	Boots, upper of leather, n.e.s.	-0.7417
64	Footwear	640590	Footwear, n.e.s.	-0.8011
62	Apparel, not knit	620211	Women's overcoats, wool/hair, not knit	-0.8277
61	Apparel, knit	610811	Women's slips or petticoats, manmade fiber, knit	-0.9633
62	Apparel, not knit	621290	Corsets	-1.0325
64	Footwear	640610	Footwear uppers	-1.0794
62	Apparel, not knit	620469	Women's trousers & shorts, material n.e.s., not knit	-1.2073
61	Apparel, knit	610459	Women's skirts, material n.e.s., knit	-1.2561
61	Apparel, knit	610120	Men's overcoats, cotton, knit	-1.2896
62	Apparel, not knit	621220	Girdles	-1.3058
61	Apparel, knit	610469	Women's trousers & shorts, material	-1.3757

			n.e.s., knit	
61	Apparel, knit	610130	Men's overcoats, manmade fibers, knit	-1.4185

The story is a bit different with regard to opportunities associated with new chapters. Concentration is less marked: optical and photographic is associated with three new opportunities, fertilizers with two, and the remaining sectors with only one opportunity each, as can be seen in Table 17.

Finally, we turn our attention to the economic complexity contribution of Panama's top new opportunities, shown in Table 18. Here again a familiar pattern emerges: new opportunities associated with Chapters 84, 85, 87, and 90 tend to be complexity enhancing, while those associated with Chapters 29, 31, 52, and 61 tend to be complexity reducing. What this means for Panama is not trivial. Can Panama, as its resources, income, and sophistication would suggest, leapfrog these less sophisticated industries and aim straight for the many lines that represent moves forward? Or does it need to/want to/can develop its exporting manufacturing from the ground up, starting from the least complex activities and gradually moving toward more advanced manufacturing?

The list of low-hanging fruits for Panama, according to the results in Table 14, are as follows:

- Some activities that are already present in Panama's export list but have the characteristic that the depth of the participation in the whole value chain for those products is still shallow,<sup>47</sup> so we choose not to omit them as "redundant confirmations" but rather list them as targets to go deeper. These include pharmaceutical and miscellaneous products.
  - Medicaments (300490)
  - **Insulin** (300431)
  - Vaccines (300220)
  - Non-contraceptive hormones (300439)
  - Various items of **Footware** (640399, 640411 and 640610)
  - Rubber tires for cars (401110)
- Some products have such high complexity (say, above 1) that for a country with  $ECI = -0.14$  and a small existing base of export manufacturing may be huge stretches, yet our methods indicate they could be feasible. Not surprisingly, the list starts with machinery and its parts, especially but not restricted to Chapters 84 and 85:
  - Monolithic integrated circuits (854211 and 854219)

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<sup>47</sup> This is not revealed by our methods but is gathered from conversations with practitioners in the field.

- Parts of data processing equipment (847330)
- Equipment for photographic laboratories (901020)
- Automatic data processing machines (847199)
- Photosensitive/PV/LED semiconductor devices (854140)
- Parts of telephone line equipment (851790)
- Parts for radio/TV transmit/receive equipment (852990)
- Digital computer CPU with storage/input/output (847191)
- Computer data storage units (847193)
- Automatic circuit breakers (853620)
- Unrecorded sound recording media (852390)
- Parts of electronic integrated circuits (854290)
- A more accessible list, but still a step up for Panama, are an assortment of other products of intermediate complexity (say, ECI [0,1]) that look promising, although they overlap with the lists of their neighbors:
  - Transmit/receive apparatus for radio/TV and their parts (852520, 852810 and 852990)
  - Unspecified motor vehicle parts (870899)
  - Aircraft parts (880330)
  - **Toys** (950390)
  - **Make-up** (330499)
  - Parts for turbo-jet and propeller engines (851790)
  - Instruments for medical science (901890)
  - Medical needles and catheters (901839)
  - Electronic diagnostic apparatus (901819)
  - Parts of printing machinery (844390).
- Several chemical products, perhaps especially viable given the logistical strengths of Panama:
  - Methyl alcohol (290511)
  - Potassium chloride (310420)
  - **Urea** (310210)
  - **Lactams** (293379)
  - Phosphoric acid (280920)
- A variety of industries not related to apparel, that seem to be easy stretches in terms of sophistication:
  - Ignition sets (854430)
  - Electric conductors (854449)
- The Panamanian authorities in charge of FDI need to make a decision about whether to pursue apparel, which creates loads of employment and

acts as an entry-level activity toward manufacturing, yet may not be feasible or desirable in a country that, after all, has the highest GDP per capita in Latin America. A few clothing and textile lines appear in Table 14.

What about the individual methods? As before, we show the list for method 1 ranked by proximity, and the results are sobering, as shown in Table A.3. Every single line in the top 20 is a step backwards in terms of complexity. The concentration in Chapters 61 and 62 is even stronger than in the case of the Dominican Republic: 18 out of 20 top results by proximity are in those chapters. In other words, while there is a discussion, just mentioned, about the feasibility and desirability of focusing on apparel, in terms of what is close in product space to what they are already doing, that is where the most feasible chances are.

If, on the other hand, we organize the results from method 1 by complexity distribution (as shown in Table 19), we can see that only one of the closest opportunities, halogenated derivatives of adrenal cortical hormones, makes it to the list. Moreover, and unlike the previous cases, the complexity-enhancing opportunities do not show particularly strong concentration in any one chapter, which may be an advantage. If, as we suggested before, countries might have an easier time pursuing opportunities within a single chapter than across several chapters—and particularly so if the chapter in question is already well established in the country. The results of method 1 suggest that Panama might have a particularly hard time upgrading its participation in GVCs or, equivalently, increasing its ECI. At least, this warrants the inclusion of several lines in the table on our list of industries to look into the following:

- Electric capacitors, ceramic, multilayer (853324)
- Sulfonamides (293500)
- Halogenated derivatives of adrenal cortical hormones (293722)
- Antibiotics (300410)
- Penicillins (300420)

The proximate countries for Panama in methods 2 and 4 are mostly developed nations, which explains what we find with them, as can be seen in Tables B.1–D.12.

What else do we learn? First, there is a high degree of overlap between the lagged and concurrent analyses (which results because the lists of proximate countries change far less between the two time frames). Also, the concurrent results in all three methods are biased toward complexity enhancement.

**Table 14. Main Results for Panama (ECI = -0.1420)**

Industry Code	Industry Name	Methods	Countries	Paths	PCI-ECI	RCA
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852520	Transmit-receive apparatus for radio, TV	7	18	48	0.7889	0.4207
854211	Monolithic integrated circuits, digital	7	16	52	1.3116	0.004
847330	Parts of data processing equipment	7	12	37	1.2177	0.1444
870899	Motor vehicle parts n.e.s.	7	8	17	0.9412	0.3224
870829	Parts of motor vehicle bodies	7	6	11	1.1427	0.0152
300490	Medicaments, doses, n.e.s.	6	15	54	0.6205	1.9417
880330	Aircraft parts n.e.s.	6	6	9	0.9140	0.0115
950390	Toys n.e.s.	6	4	11	0.3589	0.3715
401110	Rubber tires, cars, new	6	3	8	0.7080	2.4954
290511	Methyl alcohol	5	8	9	-1.0763	0
852810	Color TV receivers/monitors/projectors	5	6	13	0.0232	0.7017
520100	Cotton, not carded/combed	5	6	8	-2.2943	0
640399	Footwear, uppers of leather, n.e.s.	5	5	9	-0.7604	0.6555
330499	Make-up, n.e.s.	5	4	7	0.3119	0.6567
610910	T-shirts, of cotton, knit	5	4	7	-1.7679	0.4313
310420	Potassium chloride, >10kg	5	4	6	-0.7652	0.0022
847193	Computer data storage units	5	3	8	1.0564	0.6094
901020	Equipment for photographic laboratories n.e.s.	5	2	6	1.9367	0.0001
847199	Automatic data processing machines	5	2	5	1.2560	0.3658
640391	Boots, upper of leather, n.e.s.	5	2	4	-0.8426	0.3506
854140	Photosensitive/PV/LED semiconductor device	5	1	5	1.2120	0.132
854430	Ignition sets for vehicles/aircraft/ship	4	8	10	-0.9990	0.0088
310210	Urea, >10kg	4	7	7	-0.7588	0
841191	Turbo-jet, -propeller engine, parts	4	5	8	1.0766	0.0016
851790	Parts of telephone line equipment	4	4	19	1.2376	0.8073
940360	Furniture, wooden, n.e.s.	4	4	5	0.3169	0.0809
852990	Parts for radio/TV transmit/receive equipment	4	3	12	0.5167	0.1143
611030	Pullovers, cardigans, of manmade	4	3	7	-1.8272	0.1537

	fibers, knit					
901890	Instruments for medical science, n.e.s.	4	3	4	0.3910	0.1228

Industry Code	Industry Name	Methods	Countries	Paths	PCI-ECI	RCA
300220	Vaccines, human	4	2	14	0.7649	0.3535
910221	Wrist-watch, base-metal case, automatic wound	4	2	8	-0.0079	0.079
847191	Digital computer CPU, some storage/input/output	4	2	7	1.5078	0.1121
640411	Sports footwear, upper textile	4	2	5	-0.6444	4.5292
611020	Pullovers, cardigans, of cotton, knit	4	2	4	-1.7744	1.1255
901839	Medical needles, catheters	4	2	3	0.3225	0.2179
854449	Electric conductors, <80V, no connectors	4	2	2	-0.3753	0.3577
851782	Telegraphic apparatus, n.e.s.	4	1	4	0.1999	0.0524
640340	Footwear, uppers of leather, metal toe-cap	4	1	4	-0.9663	0.2623
620342	Men's trousers & shorts, cotton, not knit	3	4	6	-1.6037	0.8699
620462	Women's trousers & shorts, cotton, not knit	3	3	4	-1.8073	1.4999
640610	Footwear uppers	3	2	4	-1.1803	0.0003
610990	T-shirts, of material n.e.s., knit	3	2	4	-1.7150	1.0774
300439	Hormones, not contraceptive, doses	3	2	3	1.3603	0.1384
620193	Men's anoraks, manmade fibers, not knit	3	2	3	-1.0989	0.0366
300431	Insulin, doses	3	2	2	0.5210	1.625
853620	Automatic circuit breakers, <1kV	3	2	2	0.3580	0.0317
293379	Lactams, n.e.s.	3	1	7	2.0718	0.0073
640419	Footwear, uppers of textile	3	1	6	-1.2787	1.2774
852390	Unrecorded sound recording media	3	1	3	1.6634	0.3935
854219	Monolithic integrated circuits, non-digital	3	1	3	0.6157	0.0002
280920	Phosphoric acid	3	1	3	-0.3294	0.0083
611420	Garments n.e.s., of cotton, knit	3	1	3	-1.6122	0.0888

854290	Parts of electronic integrated circuits	3	1	2	1.6596	0.1878
844390	Parts of printing machinery	3	1	2	1.0991	0.6567
901819	Electro-diagnostic apparatus	3	1	2	0.9659	0.1952

**Table 15. Count of New Opportunity Industries for Panama**

Type of Opportunity	Industries
New opportunities in current chapters	19
New opportunities in new chapters	10
Total of new opportunities	29

**Table 16. Number of Opportunities by Current Chapters for Panama**

Chapter	Chapter name	Opportunities
85	Electrical machinery and equipment	6
84	Boilers, machinery and appliances	4
61	Apparel. knit	3
64	Footwear	3
29	Organic chemicals	1
30	Pharmaceutical products	1
87	Vehicles	1

**Table 17. Number of Opportunities by Not Current Chapters for Panama**

Chapter	Chapter Name	Opportunities
90	Optical, photographic	3
31	Fertilizers	2
88	Aircraft	1
52	Cotton	1
91	Clocks	1
94	Furniture	1
95	Toys	1

**Table 18. PCI-ECI for New Opportunities in Panama**

Chapter Number	Chapter Name	HS Code	PCI-ECI
90	Optical, photographic	901020	1.9367
84	Boilers, machinery and appliances	847191	1.5078
85	Electrical machinery and equipment	854211	1.3116
84	Boilers, machinery and appliances	847199	1.2560
85	Electrical machinery and equipment	854140	1.2120
87	Vehicles	870829	1.1427
84	Boilers, machinery and appliances	841191	1.0766
84	Boilers, machinery and appliances	841112	0.9333
88	Aircraft	880330	0.9140
30	Pharmaceutical products	300220	0.7649
85	Electrical machinery and equipment	852990	0.5167
90	Optical, photographic	901890	0.3910
95	Toys	950390	0.3589
90	Optical, photographic	901839	0.3225
94	Furniture	940360	0.3169
85	Electrical machinery and equipment	851782	0.1999
91	Clocks	910221	-0.0079
85	Electrical machinery and equipment	854449	-0.3753
31	Fertilisers	310210	-0.7588
64	Footwear	640399	-0.7604
31	Fertilisers	310420	-0.7652
64	Footwear	640391	-0.8426
64	Footwear	640340	-0.9663
85	Electrical machinery and equipment	854430	-0.9990
29	Organic chemicals	290511	-1.0763
61	Apparel. knit	610910	-1.7679
61	Apparel. knit	611020	-1.7744
61	Apparel. knit	611030	-1.8272
52	Cotton	520100	-2.2943

**Table 19. Top 20 Potential Export Industries for Panama with Highest Complexity Index (Method 1)**

Chapter No.	Chapter Name	HS Code	HS Name	PCI-ECI
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29	Organic chemicals	293379	Lactams, n.e.s.	2.0718
85	Electrical machinery and equipment	853224	Electric capacitors, ceramic, multilayer	1.5367
87	Vehicles	870390	Automobiles n.e.s., gas turbine powered	1.4558
87	Vehicles	870850	Drive axles for motor vehicles	1.4529
85	Electrical machinery and equipment	854190	Parts of semiconductor devices	1.2879
29	Organic chemicals	292149	Aromatic monoamines, n.e.s.	1.2694
29	Organic chemicals	293500	Sulfonamides	1.2112
29	Organic chemicals	293722	Halogenated derivatives of adrenal cortical hormones	1.1677
84	Boilers, machinery and appliances	840991	Spark-ignition engine, parts n.e.s.	1.1597
29	Organic chemicals	292249	Amino-acids, salts, esters, n.e.s.	1.0758
73	Articles of iron or steel	732690	Articles of iron/steel, n.e.s.	1.0406
84	Boilers, machinery and appliances	840999	Diesel engine, parts	0.9008
84	Boilers, machinery and appliances	841899	Freezing equipment, parts	0.8204
85	Electrical machinery and equipment	851890	Parts of non-recording electronic equipment	0.7237
40	Rubber	401699	Vulcanized rubber articles, not hard, n.e.s.	0.7190
30	Pharmaceutical products	300490	Medicaments, doses, n.e.s.	0.6205
85	Electrical machinery and equipment	852990	Parts for radio/TV transmit/receive equipment	0.5167
73	Articles of iron or steel	732510	Cast articles, non-malleable cast iron	0.5155
30	Pharmaceutical products	300420	Antibiotics, doses, n.e.s.	0.1165

## 5. Summary, Policy Considerations, and Conclusions

In this report, we have identified new potential opportunities for FDI attraction and export diversification for Costa Rica, the Dominican Republic, and Panama using four different methods, with both lagged and contemporaneous comparison points in three of them, leading to a set of seven sets of results identifying potential new opportunities.

In some cases, when a new opportunity seemed particularly relevant and we had at least some familiarity with the relevant industries, we went beyond identification, attempted a sort of taxonomy, and presented some considerations regarding the feasibility, desirability, and key obstacles the country would have to overcome in order to bridge the gap between opportunity and achievement.

Some opportunities were identified by several methods; five or more coincidences are not uncommon, and since the methods are quite different (in detail if not in spirit) such coincidences suggest that our top-ranked opportunities are robust, at least with respect to the selection of methods applied in this study. Our initial impression of robust results was reinforced when we realized that what was identified as Costa Rica's top-ranked opportunity using 2007 and 2019 data had already become a thriving export sector by 2023.

Now, what are we to make of the fact that some of the opportunities identified were complexity reducing? One perhaps overly optimistic interpretation would be the complexity-reducing opportunities in which the relevant country could but should not be a competitive exporter, as it has better and more profitable uses for its resources.

A second, and in our opinion more realistic, interpretation goes as follows. There is a part of the economy in each ADD country that is sophisticated and highly productive, and able to competitively export high PCI goods. However, there is also a large part of the economy—made up of the self-employed, the unemployed, and small to very small-scale establishments both in the formal and informal sectors—that is characterized by very low productivity, and which is unable to provide either workers or owners with a reasonable income and a dignified standard of living.

Expansion into activities that are complexity reducing in comparison with each country's ECI (which, it is well to recall, is evaluated using the composition of exports only) might indeed be complexity increasing and income enhancing for a large part of the economy and a considerable portion of the workforce. Be that as it may, some considerations regarding how to make the best use of our results seems in order.

Perhaps is best to start by indicating how our results should not be used. They do not provide conclusive evidence regarding the feasibility, let alone the desirability, of attracting FDI into any specific industry. They suggest a possibility, one that might be strong enough to persuade policymakers and other decision-makers to research the issue in more detail before launching a policy initiative or making a private decision regarding investment in the industry in question.

Second, our results are about potential feasibility; they say nothing about desirability or compatibility between the opportunity and relevant economic policies. A country may

decide to ban the development of certain activities on public health or environmental grounds, even when it could profitably invest in those activities. Our results do not speak to those concerns, but policymakers will have to take them into account.

How could our results be used, then, in our opinion?

- Decision-makers in the field—be it the agencies in charge of FDI attraction in these countries, their governments, policymakers behind the APEP negotiation or the design of coordinated industrial policies between these three countries and the United States, and even multinationals thinking about the region—can use the long lists of industries that appear in the findings section ([page 25](#)) as an initial assessment of what seems more feasible to attain.
- Our results and methods can provide guideposts and introduce an explicit logic regarding the unavoidable decision faced by all FDI attraction agencies regarding priorities and resource allocation. Risk cannot be completely eliminated, but better decisions—regarding, for example, which sector-specific expertise to acquire first and which contacts to seek first—can be improved by systematically examining available evidence using a transparent, well-defined logic, rather than relying on intuition or aspirations alone. Our results and methods are a step in that direction.
- Some questions about the desired objectives—rather than options—for FDI attraction and product space evolution in these countries popped up along our analysis, and of course had the focus of the work been on that issue, much more would have emerged. These questions need answering.
- The discussion about what *new* industries can come to these nations through FDI and contribute to employment, exports, output, and the modernization of the industrial base, while the priority here, is not the only matter regarding MNC operations. There is still room to grow in the industries that are not listed as opportunities in this document precisely because they are already present, and significant exporters from all three nations (and especially from Costa Rica and the Dominican Republic).
  - Room to grow in size
  - Room to integrate vertically, or to bring in suppliers and users to operate locally as well
  - Room to move up the quality scale, or to bring in more complex stages of the production process
  - Room for the same companies to bring down other products they make, or to perform locally services that complement their global manufactures, from IT and backoffices to R&D
- Some FDI attraction agencies are better than others in post-establishment support and the enticement of these types of growth within.

Some specific policies regarding the viability of FDI in certain sectors are enumerated in the previous sections. Many of the key obstacles these countries are facing to continue evolving in this topic relate to skills. Whether it is because trained labor in the relevant fields is few, or perhaps because they are many but have become scarce due to high demand, the fact of the matter is that these three countries seem to be able to create abundant, high-quality jobs for all people with the right skills, but many in the labor force simply do not have them. In particular, we need more people obtaining quality training (professional or vocational) in STEM and other marketable areas, in the use of English as a second language, in industrial abilities, and in the promotion of their soft skills.

And of course, there are other weaknesses. Consider, for instance, the features of the business environment that used to be measured by the World Economic Forum in its Global Competitiveness Reports.<sup>48</sup> The position of the three nations on which we focus here is middling: among 141 countries between Singapore and Chad, Costa Rica is ranked 62 (with a negative trend), Panama is 66, and the Dominican Republic 78 (with a positive trend)—respectively fifth, seventh, and ninth in Latin America, notably behind Mexico, which is a very direct competitor for the FDI we write about. The key weaknesses for each country, and therefore a focus on active policy needs, were catalogued as follows:

- For Costa Rica, in macroeconomic stability and the cost of doing business
- For the Dominican Republic, in skills, institutions, and the capacity for innovation
- For Panama, in digital transformation, skills, and the mechanics of the labor market

We conclude with a synoptic presentation of our main results in a table that compactly summarizes a lot of information—so much so that a little explaining is called for before digging into the table itself.

In Table 20, we confine our attention to each country's top 20 exports, and to its top 20 opportunities, ranked by the number of methods that lead to them. The table presents information at the chapter (two-digit) and product (six-digit) levels.

At the chapter level, a blue cell indicates that the country is already exporting products in that chapter— or more precisely, that there are products among its top 20 exports that are in that chapter. A yellow cell indicates that, while we have identified opportunities in that chapter, there are currently no exports in that chapter (again, among the country's top 20 exports).

In the rows corresponding to individual industries at the six-digit level, an empty cell indicates that no opportunities were found for the relevant country in that industry. A

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<sup>48</sup> One sad casualty of the pandemic is that the last edition of this resource was in 2019.



red cell indicates that complexity- reducing opportunities were found (PCI below ECI), and a green cell indicates that complexity- enhancing opportunities were identified.

Now, let's take a look at the table and illustrate how our results can be used as starting points for further research and action by FDI attraction agencies.

- In several chapters, we find opportunities only for one ADD country. In those cases, each country is on its own, and there is no basis for cooperation or collective action among them. Such are the cases for Chapter 28, Inorganic chemicals; Chapter 29, Organic chemicals; Chapter 94, Furniture; and Chapter 95, Toys.
- There is one case where all countries have opportunities, but it belongs to a chapter that is not currently among the top exports of any of the countries: Chapter 88, Aircraft. Joint marketing intelligence and research efforts may make sense.
- Chapter 84, Boilers and machinery, offers complexity-enhancing opportunities for all three countries, but industries in this chapter are among the country's top 20 exports only in Panama. Does this translate into such an advantage for Panama that Costa Rica and the Dominican Republic should try their fortunes somewhere else?
- The largest number of complexity-enhancing opportunities for all countries are in Chapter 85, Electrical machinery and equipment— frequently in the same six-digit industries. Does this mean that in the chapter, ADD countries are competitors in a zero-sum game; or that, taken together, they could achieve economies of scale and agglomeration if they manage to make the movement of parts across plants in different countries almost frictionless?
- There is a large number of complexity-reducing opportunities for all countries. What to make of this? Since in all ADD countries there is a large number informal sector, and the structure of economic establishments is characterized by a very large number of very small, low-productivity firms, are not these complexity-reducing opportunities better than current resource allocation? And if so, why are resources not allocated to their better uses? FDI agencies may be able to do very little about this, but if the relevant agencies did their work, FDI agencies might be well advised to seek investment in these activities, rather than assume that the country has outgrown them.

Earlier in this document we made a brief reference to the distinction between vertical and horizontal productive development policies, and between market interventions and the supply of public goods. Just in passing, we indicated that vertical market interventions are not, in our opinion, either advisable or feasible. The time has come to briefly expand our discussion about these matters.

The CHIPs Act is the most notorious recent example of a vertical, market intervention-based productive development policy: specific sectors were chosen—on strategic and geopolitical grounds, not mainly on short-term economic efficiency grounds—and very large subsidies were made available to investors in the chosen sectors. One could argue that successful economic transitions in the twentieth century have a strong “picking winners” component, at least initially.

None of this would be a good reason to implement such policies in the ADD countries. To successfully implement a “picking winners” strategy requires a rather high degree of public sector in order to make sound choices; it also requires the financial capability to absorb the inevitable failures—because, as any venture capitalist soon realizes, no matter how sound the decision process may be, not all, and perhaps not even many investments will be successful. Finally, if market interventions are not to become a bottomless pit, the public sector has to be able to withdraw them if their goals have been achieved or if the policy has failed. Neither of these conditions are attained in ADD countries.

Governments, however, may be able to create conditions that allow potential winners to reveal themselves and to encourage the growth of already revealed, but incipient, winners. And if it does so, providing public and club goods that have some plasticity, the risks of misallocation of public resources are reduced. For example, if vocational training, tertiary education, and technical services in an already established industry can be allocated, with small adjustments, to work in a new, close-by industry, expansion of those public services may allow the new industry to flourish or be gainfully employed by established industries if the new industry does not grow as expected.

All of these are examples of cases when a government may try to build favorable conditions for investment in a broadly defined sector, without initially directing resources to specific industries within the sector, but, once specific industries start to show potential, resources are focused, specific requirements are evaluated, provision of public services and goods is adjusted to the requirements to the new, promising sectors. It might be useful to think of this as a strategy of “following the winners” or “supporting budding winners” using mostly soft policy interventions (provision of vertically tailored public goods) while “market interventions,” such as fiscal incentives, are used only, or mostly, as horizontal policy interventions.

Finally, is there something these three countries can do together? Beyond being three friends facing largely the same issues, are they facing them as a team, or more as competitors? To what extent do their lists complement rather than overlap? We have mentioned a few cases (notably, electric and digital equipment and their parts, as well as medical devices) in which their targets seem to coincide, although their industrial development in those industries is at different stages. Does this mean that cooperation is impossible? On the other hand, there are other cases (for instance, in the question of producing the textile versus the apparel, or the parts versus the assembly) where their targets much more clearly fit with each other. Does this mean that cooperation is mandatory? Incidentally, the three countries can benefit from (or be hurt by) the

outcomes of both APEP—where they will all participate in negotiation—and U.S. industrial policy—which they can lobby and help shape.<sup>49</sup>

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<sup>49</sup> The immediate region has a history of constructive cooperation when addressing this type of issue, whether in the creation of the Central American Common Market, the shaping of the old Caribbean Basin Initiative, or the negotiations of CAFTA with the United States, and of the Association Agreement with the European Union. That is a tool that we may want to take out of the box.

**Table 20. Cross-Country Comparison of New Opportunities**

Code	Name	CRI	DOM	PAN	Code	Name	CRI	DOM	PAN
28	Inorganic chemicals				84	Boilers, machinery and appliances			
283620	Disodium carbonate				847199	Automatic data processing machines			
280920	Phosphoric acid				847191	Digital computer CPU, some storage/input/output			
29	Organic chemicals				847330	Parts of data processing equipment			
290511	Methyl alcohol				841112	Turbo-jet engine, >25 KN			
300439	Hormones, not contraceptive, doses				841191	Turbo-jet, -propeller engine, parts			
300220	Vaccines, human				85	Electrical machinery and equipment			
31	Fertilizers				853620	Automatic circuit breakers, <1kV			
310420	Potassium chloride, >10kg				852810	Color TV receivers/monitors/projectors			
310210	Urea, >10kg				854449	Electric conductors, <80V, no connectors			
382390	Chemical products, n.e.s.				853710	Electrical control & distribution boards, <1kV			
401110	Rubber tires, cars, new				854430	Ignition sets for vehicles/aircraft/ship			
521213	Cotton fabric, <200g/m2, dye, n.e.s.				854211	Monolithic integrated circuits, digital			
520100	Cotton, not carded/combed				852990	Parts for radio/TV transmit/receive equipment			
61	Apparel, knit				851790	Parts of telephone line equipment			
610510	Men's shirts, cotton, knit				854140	Photosensitive/PV/LED semiconductor device			
611020	Pullovers, cardigans, of cotton, knit				850440	Static converters, n.e.s.			
610910	T-shirts, of cotton, knit				851782	Telegraphic apparatus, n.e.s.			
610821	Women's briefs or panties, cotton, knit				852520	Transmit-receive apparatus for radio, TV			
					852390	Unrecorded sound recording media			
					87	Vehicles			
					870899	Motor vehicle parts n.e.s.			
					870829	Parts of motor vehicle bodies			

Code	Name	CRI	DOM	PAN	Code	Name	CRI	DOM	PAN
611030	Pullovers, cardigans, of manmade fibers, knit			■	870840	Transmissions for motor vehicles	■	■	
<b>62</b>	<b>Apparel, not knit</b>	■	■	■	<b>88</b>	<b>Aircraft</b>	■	■	■
620520	Men's shirts, cotton, not knit	■	■		880330	Aircraft parts n.e.s.	■	■	■
620342	Men's trousers & shorts, cotton, not knit	■	■		<b>89</b>	<b>Ships</b>	■	■	■
620462	Women's trousers & shorts, cotton, not knit	■	■	■	890590	Floating docks, special function vessels	■		
<b>63</b>	<b>Other made up textile articles</b>	■	■	■	<b>90</b>	<b>Optical, photographic</b>	■	■	■
630260	Toilet/kitchen linen, of terry	■	■		902130	Artificial body parts, aids		■	
<b>64</b>	<b>Footwear</b>	■	■	■	901020	Equipment for photographic laboratories n.e.s.	■		■
640391	Boots, upper of leather, n.e.s.	■		■	901890	Instruments for medical science, n.e.s.			■
640399	Footwear, uppers of leather, n.e.s.	■		■	901839	Medical needles, catheters			■
640340	Footwear, uppers of leather, metal toe-cap			■	<b>91</b>	<b>Clocks</b>	■	■	■
<b>69</b>	<b>Ceramic</b>	■	■	■	910221	Wrist-watch, base-metal case, automatic wound			■
690790	Unglazed ceramic tiles, >7cm wide	■	■		<b>94</b>	<b>Furniture</b>	■	■	■
					940360	Furniture, wooden, n.e.s.			■
					<b>95</b>	<b>Toys</b>	■	■	■
					950390	Toys n.e.s.			■

Note: ■ Top exports in this chapter; ■ No top exports in this chapter; ■ No opportunities in this industry; ■ Complexity reducing opportunities in this industry; ■ Complexity enhancing opportunities in this industry.



## APPENDIX

**Table A.1. Closest Industries to Current Export Industries in Costa Rica According to Hausmann Proximity (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Proximity	Paths	PCI	RCA
854190	Parts of semiconductor devices	0.8462	2	1.1459	0.0679
151321	Palm kernel & babassu oil, crude	0.7619	2	-2.5449	12.8369
020622	Bovine livers, frozen	0.75	1	-0.659	0.1395
854121	Transistors, <1 watt	0.6923	2	1.6159	0.0653
854290	Parts of electronic integrated circuits	0.6923	2	1.5176	0.0804
900211	Lenses for camera or projector	0.6923	2	0.9394	0.0201
852290	Parts/accessories of recorders	0.6923	2	0.6216	0.0044
732690	Articles of iron/steel, n.e.s.	0.6774	3	0.8986	0.315
854150	Semiconductor devices, not light sensitive	0.6667	2	1.2606	5.8338
170490	Sugar confectionery, not chewing gum	0.6604	4	-0.614	1.5185
853610	Electrical fuses, <1kV	0.6522	1	0.9689	1.0942
854129	Transistors, >1 watt	0.6429	1	1.3053	0.0107
852990	Parts for radio/TV transmit/receive equipment	0.6429	1	0.3747	0.0759
843139	Parts of lifting/handling machinery n.e.s.	0.6333	2	0.9783	0.0954
020629	Bovine offal, frozen	0.6316	2	-1.006	3.3451
853630	Electrical circuit protectors, <1kV	0.6296	3	0.2571	3.1633
300420	Antibiotics, doses, n.e.s.	0.6286	1	-0.0255	0.8996
020621	Bovine tongue, frozen	0.625	1	-0.3815	0.3564
850440	Static converters, n.e.s.	0.619	2	0.9852	0.0958
401699	Vulcanized rubber articles, not hard, n.e.s.	0.6176	3	0.577	0.5699
853224	Electric capacitors, ceramic, multilayer	0.6154	1	1.3947	0.0099
847330	Parts of data processing equipment	0.6154	1	1.0757	0.1538
854140	Photosensitive/PV/LED semiconductor device	0.6154	1	1.07	0.049
854390	Parts of electrical machines, n.e.s.	0.6154	1	0.9359	0.6183
854219	Monolithic integrated circuits, non-digital	0.6154	1	0.4737	0.0739
481910	Corrugated paper, boxes	0.6111	3	-0.7048	1.1812
853321	Electrical resistors fixed, <20W	0.6111	2	0.9942	1.568
150200	Bovine, sheep fats	0.6111	2	-0.5089	0.6722

902990	Parts/accessories of revolution counters	0.6087	2	1.098	0.0323
851220	Lighting/visual signalling equipment	0.6087	2	0.9369	1.66
390390	Styrene polymers, not SAN, ABS	0.6087	2	0.857	0.0016
851230	Sound signalling equipment	0.6087	2	0.7555	0
853390	Parts of electrical resistors, rheostats	0.6087	1	1.1568	7.0363
160100	Sausages	0.6047	4	-0.0426	2.4256
190530	Sweet biscuits, waffles	0.6038	6	-0.6967	3.4495
190590	Communion wafers, rice paper	0.6038	5	-0.2587	2.3332
853890	Parts of elect switches, protectors	0.6	4	0.9786	0.2917
170310	Cane molasses	0.6	3	-2.343	0.0018
841950	Heat exchange units, non-domestic	0.6	2	1.2046	0.0191
020130	Boneless beef	0.6	2	-0.5527	0.6528
853222	Electric capacitors, aluminium electrolytic	0.6	1	1.2934	0.0143
903190	Parts/access for measuring equipment	0.6	1	1.1518	1.6459

**Table A. 2. Closest Industries to Current Export Industries in Dominican Republic According to Hausmann Proximity (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Proximity	Paths	PCI	RCA
611430	Garments n.e.s., of manmade fibers, knit	0.8333	3	-1.8621	3.6835
611020	Pullovers, cardigans, of cotton, knit	0.8333	2	-1.9164	3.6443
611030	Pullovers, cardigans, of manmade fibers, knit	0.8333	3	-1.9692	1.8708
610510	Men's shirts, cotton, knit	0.825	3	-1.8315	0.2618
610463	Women's trousers & shorts, synthetic fibers, knit	0.8108	4	-1.9116	1.0519
610130	Men's overcoats, manmade fibers, knit	0.8056	1	-1.6614	1.8753
610342	Men's trousers & shorts, cotton, knit	0.8056	3	-1.9016	0.1428
620530	Men's shirts, manmade fibers, not knit	0.8056	3	-1.9863	6.0305
610462	Women's trousers & shorts, of cotton, knit	0.8056	2	-2.0954	0.0365
610910	T-shirts, of cotton, knit	0.8	3	-1.9099	17.7484
610822	Women's briefs or panties, manmade fiber, knit	0.7931	1	-1.6976	4.875
620462	Women's trousers & shorts, cotton, not knit	0.7895	3	-1.9493	0.2244
640399	Footwear, uppers of leather, n.e.s.	0.7778	2	-0.9024	2.2519
640391	Boots, upper of leather, n.e.s.	0.7778	3	-0.9846	10.5421
610343	Men's trousers, shorts, synthetic fibers, knit	0.7778	1	-2.0001	0.8365
240130	Tobacco refuse	0.7714	2	-1.925	14.6482



610120	Men's overcoats, cotton, knit	0.7692	2	-1.5325	0.4792
620469	Women's trousers & shorts, material n.e.s., not knit	0.7609	1	-1.4502	0.5396
620463	Women's trousers & shorts, synth fibers, not knit	0.7609	1	-1.6938	0.865
620342	Men's trousers & shorts, cotton, not knit	0.7609	1	-1.7457	0.5632
620349	Men's trousers & shorts, material n.e.s., not knit	0.7609	1	-1.7462	1.1081
610990	T-shirts, of material n.e.s., knit	0.7609	1	-1.857	3.2058
610620	Women's blouses & shirts, manmade fiber, knit	0.7391	2	-1.7003	0.2891
610520	Men's shirts, manmade fibers, knit	0.7391	3	-2.2362	0.3535
621220	Girdles	0.7333	1	-1.5487	2.1495
610610	Women's blouses & shirts, cotton, knit	0.7317	2	-1.7919	0.1819
610469	Women's trousers & shorts, material n.e.s., knit	0.7174	2	-1.6186	0.7202
620343	Men's trousers & shorts, synthetic fiber, not knit	0.7174	1	-1.6887	3.972
621290	Corsets	0.7143	1	-1.2754	10.9202
640610	Footwear uppers	0.6667	3	-1.3223	10.7509
640510	Footwear, n.e.s., uppers leather	0.6571	2	-0.9597	105.321
830170	Keys, metal	0.65	1	1.1045	0
830241	Fittings for buildings, metal	0.65	1	0.4563	0.038
610811	Women's slips or petticoats, manmade fiber, knit	0.6452	1	-1.2062	1.2865
830160	Lock parts, metal	0.64	1	0.7796	0.5096
620211	Women's overcoats, wool/hair, not knit	0.6364	2	-1.0706	8.4682
610459	Women's skirts, material n.e.s., knit	0.6364	1	-1.499	0.0963
853630	Electrical circuit protectors, <1kV	0.6296	4	0.2571	1.2928
300420	Antibiotics, doses, n.e.s.	0.6286	1	-0.0255	0.1966
640590	Footwear, n.e.s.	0.6286	1	-1.044	1.5003

**Table A.3. Closest Industries to Current Export Industries in Panama According to Hausmann Proximity (Panama ECI = -0.1420)**

Industry Code	Industry Name	Proximity	Paths	PCI	RCA
620342	Men's trousers & shorts, cotton, not knit	0.7907	2	-1.7457	0.8699
611030	Pullovers, cardigans, of manmade fibers, knit	0.7895	1	-1.9692	0.1537
620469	Women's trousers & shorts, material n.e.s., not knit	0.7778	1	-1.4502	5.871
620590	Men's shirts, material n.e.s., not knit	0.7778	1	-1.6373	18.0172
611020	Pullovers, cardigans, of cotton, knit	0.7632	1	-1.9164	1.1255
610990	T-shirts, of material n.e.s., knit	0.7609	1	-1.857	1.0774
293722	Halogenated derivatives of adrenal cortical hormones	0.75	1	1.0257	0.0025
610910	T-shirts, of cotton, knit	0.75	2	-1.9099	0.4313
620463	Women's trousers & shorts, synth fibers, not knit	0.7442	2	-1.6938	1.0521
610510	Men's shirts, cotton, knit	0.7436	2	-1.8315	0.6408
610463	Women's trousers & shorts, synthetic fibers, knit	0.7368	1	-1.9116	0.1713
611090	Pullovers, cardigans, of material n.e.s., knit	0.7333	1	-1.7355	15.1094
610120	Men's overcoats, cotton, knit	0.7179	1	-1.5325	2.6488
852990	Parts for radio/TV transmit/receive equipment	0.7143	1	0.3747	0.1143
610469	Women's trousers & shorts, material n.e.s., knit	0.7111	1	-1.6186	1.0192
620520	Men's shirts, cotton, not knit	0.7111	1	-1.7751	0.7231
610349	Men's trousers & shorts, material n.e.s., knit	0.7111	1	-1.8578	5.3346
620630	Women's blouses & shirts, cotton, not knit	0.7105	1	-1.758	1.257
611430	Garments n.e.s., of manmade fibers, knit	0.7105	1	-1.8621	0.8642
610342	Men's trousers & shorts, cotton, knit	0.7105	1	-1.9016	0.8857
610462	Women's trousers & shorts, of cotton, knit	0.7105	2	-2.0954	1.3334
732690	Articles of iron/steel, n.e.s.	0.7097	2	0.8986	0.0958
840999	Diesel engine, parts	0.6875	2	0.7588	0.174
853224	Electric capacitors, ceramic, multilayer	0.6667	1	1.3947	0.0022
854190	Parts of semiconductor devices	0.6667	3	1.1459	0.0035
300410	Penicillins and streptomycins, doses	0.6667	2	-0.1474	4.0976
870850	Drive axles for motor vehicles	0.6552	1	1.3109	0.0293
840991	Spark-ignition engine, parts n.e.s.	0.6552	1	1.0177	0.2042
401699	Vulcanized rubber articles, not hard, n.e.s.	0.6552	2	0.577	0.0823

732510	Cast articles, non-malleable cast iron	0.6452	2	0.3735	0.0042
851890	Parts of non-recording electronic equipment	0.6429	1	0.5817	0.2048
292149	Aromatic monoamines, n.e.s.	0.6364	3	1.1274	10.6033
640299	Footwear, sole/upper of rubber/plastic, n.e.s.	0.6316	2	-1.7852	4.1207
640220	Footwear, of rubber/plastic, plugs fix straps	0.6316	1	-2.0167	18.6087
300490	Medicaments, doses, n.e.s.	0.6286	1	0.4785	1.9417
300420	Antibiotics, doses, n.e.s.	0.6286	1	-0.0255	2.844
293379	Lactams, n.e.s.	0.625	2	1.9298	0.0073
293500	Sulfonamides	0.625	1	1.0692	10.4603
292249	Amino-acids, salts, esters, n.e.s.	0.625	1	0.9338	28.2624
841899	Freezing equipment, parts	0.625	1	0.6784	0.8595

**Table B.1. Potential Export Industries for Costa Rica Suggested by Closest Countries in Resource Endowment in 2019 (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
852520	Transmit-receive apparatus for radio, TV	5	0.6469	0.0165
847330	Parts of data processing equipment	4	1.0757	0.1538
854430	Ignition sets for vehicles/aircraft/ship	4	-1.141	0.1243
620342	Men's trousers & shorts, cotton, not knit	4	-1.7457	0.0441
854211	Monolithic integrated circuits, digital	3	1.1696	0.1068
852990	Parts for radio/TV transmit/receive equipment	3	0.3747	0.0759
852810	Color TV receivers/monitors/projectors	3	-0.1188	0.0511
610910	T-shirts, of cotton, knit	3	-1.9099	0.0194
851790	Parts of telephone line equipment	2	1.0956	0.1031
850440	Static converters, n.e.s.	2	0.9852	0.0958
847193	Computer data storage units	2	0.9144	0.0155
640411	Sports footwear, upper textile	2	-0.7864	0.001
310210	Urea, >10kg	2	-0.9008	0.0581
640399	Footwear, uppers of leather, n.e.s.	2	-0.9024	0.016
710391	Rubies, sapphires & emeralds, worked, not set	2	-1.2983	0
610510	Men's shirts, cotton, knit	2	-1.8315	0.0132
611020	Pullovers, cardigans, of cotton, knit	2	-1.9164	0.0035
620462	Women's trousers & shorts, cotton, not knit	2	-1.9493	0.0088
852390	Unrecorded sound recording media	1	1.5214	0.1316
853224	Electric capacitors, ceramic, multilayer	1	1.3947	0.0099
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.0176
854129	Transistors, >1 watt	1	1.3053	0.0107
854140	Photosensitive/PV/LED semiconductor device	1	1.07	0.049
290810	Halogen derivs of phenols	1	0.8949	0
880330	Aircraft parts n.e.s.	1	0.772	0.0537
390410	Polyvinyl chloride	1	0.7215	0.0395
392690	Plastic articles, n.e.s.	1	0.5935	1.9143
300390	Medicaments, formulated, n.e.s.	1	0.5861	0.2462
401110	Rubber tires, cars, new	1	0.566	3.4021
300490	Medicaments, doses, n.e.s.	1	0.4785	0.4894
401290	Tires, interchangeable treads	1	0.3285	0.0253

950390	Toys n.e.s.	1	0.2169	0.0255
853620	Automatic circuit breakers, <1kV	1	0.216	0.4686
690220	Refractory bricks, >50% alumina, silica	1	0.1513	0.0322
280700	Sulfuric acid, oleum	1	0.0804	0.0056
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0036
320890	Polymer paint, non-aqueous	1	0.0399	0.9253

Industry Code	Industry Name	Paths	PCI	RCA
380820	Fungicides	1	-0.0962	3.9046
300239	Vaccines, veterinary	1	-0.1972	0.0113
382390	Chemical products, n.e.s.	1	-0.2594	0.1571
902830	Electricity supply, calibration meters	1	-0.3821	0.0289
871120	Motorcycles, 50-250cc engine	1	-0.4021	0.0199
880230	Fixed wing aircraft, 2,000-15,000 kg	1	-0.4466	0.0212
280920	Phosphoric acid	1	-0.4714	0.0166
710691	Silver in unwrought forms	1	-0.5057	0.0055
283620	Disodium carbonate	1	-0.5831	0
854420	Coaxial cable	1	-0.6149	4.8081
690790	Unglazed ceramic tiles, >7cm wide	1	-0.6254	0.1309
310420	Potassium chloride, >10kg	1	-0.9072	0.0519
680100	Stone setts, curbstones	1	-0.9883	0.0541
521213	Cotton fabric, <200g/m2, dye, n.e.s.	1	-1.1418	0
391723	Polyvinyl chloride tube, rigid	1	-1.2076	19.0403
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.0242
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.018
640419	Footwear, uppers of textile	1	-1.4207	0.0041
621210	Brassieres	1	-1.5063	0.8846
630260	Toilet/kitchen linen, of terry	1	-1.521	0.0925
520524	Cotton yarn >85%, sing comb 192-125	1	-1.55	1.8972
520523	Cotton yarn >85%, sing comb 232-192	1	-1.5605	10.9901
610711	Men's underpants or briefs, cotton, knit	1	-1.5865	0.0164
611490	Garments n.e.s., of materials n.e.s., knit	1	-1.6279	0.1417
610822	Women's briefs or panties, manmade fiber, knit	1	-1.6976	0.0065

611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0754
620520	Men's shirts, cotton, not knit	1	-1.7751	0.0123
610990	T-shirts, of material n.e.s., knit	1	-1.857	0.0611
611430	Garments n.e.s., of manmade fibers, knit	1	-1.8621	0.0644
970600	Antiques	1	-1.9321	0.0124
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	0.0489
530599	Vegetable fiber, processed unspun	1	-2.0786	0.8641
520513	Cotton yarn >85%, sing uncomb 232-192	1	-2.089	0
520512	Cotton yarn >85%, sing uncomb 714-232	1	-2.0928	0
520100	Cotton, not carded/combed	1	-2.4363	0.0172

**Table B.2. Potential Export Industries for Costa Rica Suggested by Closest Countries in Resource Endowment in 2007 (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
271000	Oils petroleum, bituminous, distillates	6	-0.9628	0.0037
854430	Ignition sets for vehicles/aircraft/ship	3	-1.141	0.1243
160414	Tuna, preserved	3	-2.291	3.0756
854211	Monolithic integrated circuits, digital	2	1.1696	0.1068
847330	Parts of data processing equipment	2	1.0757	0.1538
060310	Flowers for bouquets (fresh)	2	-1.7099	3.547
620342	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.0441
610910	T-shirts, of cotton, knit	2	-1.9099	0.0194
271111	Natural gas, liquefied	2	-2.2934	0
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.0176
854129	Transistors, >1 watt	1	1.3053	0.0107
854140	Photosensitive/PV/LED semiconductor device	1	1.07	0.049
850440	Static converters, n.e.s.	1	0.9852	0.0958
390410	Polyvinyl chloride	1	0.7215	0.0395
852520	Transmit-receive apparatus for radio, TV	1	0.6469	0.0165
392690	Plastic articles, n.e.s.	1	0.5935	1.9143
300490	Medicaments, doses, n.e.s.	1	0.4785	0.4894
401290	Tires, interchangeable treads	1	0.3285	0.0253
853620	Automatic circuit breakers, <1kV	1	0.216	0.4686
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0036
852810	Color TV receivers/monitors/projectors	1	-0.1188	0.0511
280920	Phosphoric acid	1	-0.4714	0.0166
283620	Disodium carbonate	1	-0.5831	0
220300	Beer, malt	1	-0.6161	0.2773
220110	Mineral & aerated waters	1	-0.7436	0.1197
220421	Grape wines, <2l pack	1	-0.7438	0.0002
310420	Potassium chloride, >10kg	1	-0.9072	0.0519
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	0.016
220190	Ice, potable water	1	-0.9577	0.3143

220820	Spirits from distilling grape wine	1	-0.9832	0
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.0423
240210	Cigars	1	-0.9983	1.3652
240220	Cigarettes	1	-0.9993	0.0011
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	0.0393
080610	Grapes, fresh	1	-1.1527	0.0698
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.0242
220840	Rum	1	-1.2847	3.4593

Industry Code	Industry Name	Paths	PCI	RCA
080920	Cherries, fresh	1	-1.2999	0
640610	Footwear uppers	1	-1.3223	0
252329	Portland cement, not white	1	-1.3628	0.8655
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.018
260700	Lead ores	1	-1.4512	0
251010	Calcium phosphate, unground	1	-1.4789	0
621210	Brassieres	1	-1.5063	0.8846
030410	Fish meat, not liver or roe	1	-1.5169	6.7233
170199	Refined sugar, pure sucrose	1	-1.5756	0.652
090230	Tea, black, in <3kg packages	1	-1.5883	0.0149
030341	Albacore, frozen	1	-1.6646	0
200899	Fruit, otherwise preserved	1	-1.679	24.7459
260111	Iron ore, unagglomerated	1	-1.7388	0
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0754
620520	Men's shirts, cotton, not knit	1	-1.7751	0.0123
230120	Flour, meal of fish, for animal feed	1	-1.8955	1.1349
030420	Fish fillets, frozen	1	-1.9438	0.3665
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	0.0489
170111	Raw sugar, cane	1	-2.0917	6.9283
030613	Shrimps, frozen	1	-2.1623	0.5354
151190	Palm oil, simply refined	1	-2.3036	0.7091
090240	Tea, black, in >3kg packages	1	-2.3562	0.0068
520100	Cotton, not carded/combed	1	-2.4363	0.0172
090111	Coffee, not roasted	1	-2.5829	17.704



**Table B.3. Potential Export Industries for Dominican Republic Suggested by Closest Countries in Resource Endowment in 2019 (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
271000	Oils petroleum, bituminous, distillates	7	-0.9628	0.0509
854430	Ignition sets for vehicles/aircraft/ship	3	-1.141	0.0684
160414	Tuna, preserved	3	-2.291	0.0026
854211	Monolithic integrated circuits, digital	2	1.1696	0.002
847330	Parts of data processing equipment	2	1.0757	0.0044
852810	Color TV receivers/monitors/projectors	2	-0.1188	0.0169
260800	Zinc ores	2	-1.2748	1.0405
060310	Flowers for bouquets (fresh)	2	-1.7099	0.0668
260111	Iron ore, unagglomerated	2	-1.7388	0
260300	Copper ores	2	-1.9059	1.8729
271111	Natural gas, liquefied	2	-2.2934	0.0679
090111	Coffee, not roasted	2	-2.5829	0.3101
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.0009
854129	Transistors, >1 watt	1	1.3053	0.0003
851790	Parts of telephone line equipment	1	1.0956	0.0197
850440	Static converters, n.e.s.	1	0.9852	0.0788
847193	Computer data storage units	1	0.9144	0.0046
390410	Polyvinyl chloride	1	0.7215	0.0043
852520	Transmit-receive apparatus for radio, TV	1	0.6469	0.0679
300490	Medicaments, doses, n.e.s.	1	0.4785	0.1696
401290	Tires, interchangeable treads	1	0.3285	0.0351
902130	Artificial body parts, aids	1	0.3247	0.1188
901890	Instruments for medical science, n.e.s.	1	0.249	19.2792
950390	Toys n.e.s.	1	0.2169	0.1046
901839	Medical needles, catheters	1	0.1805	5.1652
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0
210690	Food preparations n.e.s.	1	-0.1646	1.7191

280920	Phosphoric acid	1	-0.4714	0.0153
283620	Disodium carbonate	1	-0.5831	0.0044
220300	Beer, malt	1	-0.6161	2.0639
220110	Mineral & aerated waters	1	-0.7436	0.0319
310210	Urea, >10kg	1	-0.9008	0.1757
310420	Potassium chloride, >10kg	1	-0.9072	0.1061
220190	Ice, potable water	1	-0.9577	0.4635
220820	Spirits from distilling grape wine	1	-0.9832	0.0129
240220	Cigarettes	1	-0.9993	0.4126
080510	Oranges	1	-1.1981	0.5741

Industry Code	Industry Name	Paths	PCI	RCA
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.132
220840	Rum	1	-1.2847	75.236
260400	Nickel ores	1	-1.3612	0.0232
252329	Portland cement, not white	1	-1.3628	13.5515
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.0327
260700	Lead ores	1	-1.4512	0
621210	Brassieres	1	-1.5063	8.1762
170199	Refined sugar, pure sucrose	1	-1.5756	0.0352
090230	Tea, black, in <3kg packages	1	-1.5883	0
200899	Fruit, otherwise preserved	1	-1.679	3.5819
620342	Men's trousers & shorts, cotton, not knit	1	-1.7457	0.5632
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.1209
620520	Men's shirts, cotton, not knit	1	-1.7751	0.9954
230120	Flour, meal of fish, for animal feed	1	-1.8955	0
080430	Pineapples	1	-1.9285	3.3233
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	1.8708
170111	Raw sugar, cane	1	-2.0917	10.503
030613	Shrimps, frozen	1	-2.1623	0.0206
090240	Tea, black, in >3kg packages	1	-2.3562	0
520100	Cotton, not carded/combed	1	-2.4363	0
260200	Manganese ores	1	-2.5179	0

**Table B.4. Potential Export Industries for Dominican Republic Suggested by Closest Countries in Resource Endowment in 2007 (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
271000	Oils petroleum, bituminous, distillates	7	-0.9628	0.0509
260300	Copper ores	3	-1.9059	1.8729
300490	Medicaments, doses, n.e.s.	2	0.4785	0.1696
854430	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.0684
260800	Zinc ores	2	-1.2748	1.0405
260111	Iron ore, unagglomerated	2	-1.7388	0
620342	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.5632
030613	Shrimps, frozen	2	-2.1623	0.0206
160414	Tuna, preserved	2	-2.291	0.0026
271111	Natural gas, liquefied	2	-2.2934	0.0679
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.0009
854211	Monolithic integrated circuits, digital	1	1.1696	0.002
847330	Parts of data processing equipment	1	1.0757	0.0044
854140	Photosensitive/PV/LED semiconductor device	1	1.07	0.2307
870899	Motor vehicle parts n.e.s.	1	0.7992	0.2074
852520	Transmit-receive apparatus for radio, TV	1	0.6469	0.0679
401110	Rubber tires, cars, new	1	0.566	0.0102
480252	Paper, fine, woodfree, 40-150 g/m2, uncoated	1	0.5614	0.0716
401290	Tires, interchangeable treads	1	0.3285	0.0351
902130	Artificial body parts, aids	1	0.3247	0.1188
901890	Instruments for medical science, n.e.s.	1	0.249	19.2792
901839	Medical needles, catheters	1	0.1805	5.1652
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0
470329	Chem wood pulp, sulphate, non-conifer, bleached	1	-0.0932	0
852810	Color TV receivers/monitors/projectors	1	-0.1188	0.0169
210690	Food preparations n.e.s.	1	-0.1646	1.7191
280920	Phosphoric acid	1	-0.4714	0.0153
283620	Disodium carbonate	1	-0.5831	0.0044

220300	Beer, malt	1	-0.6161	2.0639
220421	Grape wines, <2l pack	1	-0.7438	0.3331
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	2.2519
310420	Potassium chloride, >10kg	1	-0.9072	0.1061
220820	Spirits from distilling grape wine	1	-0.9832	0.0129
640391	Boots, upper of leather, n.e.s.	1	-0.9846	10.5421
240220	Cigarettes	1	-0.9993	0.4126
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	11.9861
080610	Grapes, fresh	1	-1.1527	0.0022

Industry Code	Industry Name	Paths	PCI	RCA
290511	Methyl alcohol	1	-1.2183	0.0074
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.132
220840	Rum	1	-1.2847	75.236
080920	Cherries, fresh	1	-1.2999	0.0008
640610	Footwear uppers	1	-1.3223	10.7509
252329	Portland cement, not white	1	-1.3628	13.5515
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.0327
260700	Lead ores	1	-1.4512	0
621210	Brassieres	1	-1.5063	8.1762
030410	Fish meat, not liver or roe	1	-1.5169	0.0102
170199	Refined sugar, pure sucrose	1	-1.5756	0.0352
090230	Tea, black, in <3kg packages	1	-1.5883	0
200899	Fruit, otherwise preserved	1	-1.679	3.5819
060310	Flowers for bouquets (fresh)	1	-1.7099	0.0668
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.1209
620520	Men's shirts, cotton, not knit	1	-1.7751	0.9954
160510	Crab, preserved	1	-1.8525	0
230120	Flour, meal of fish, for animal feed	1	-1.8955	0
080430	Pineapples	1	-1.9285	3.3233
030420	Fish fillets, frozen	1	-1.9438	0
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	1.8708
151190	Palm oil, simply refined	1	-2.3036	0.1331
090240	Tea, black, in >3kg packages	1	-2.3562	0

520100	Cotton, not carded/combed	1	-2.4363	0
090111	Coffee, not roasted	1	-2.5829	0.3101

**Table B.5. Potential Export Industries for Panama Suggested by Closest Countries in Resource Endowment in 2019 (Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
271000	Oils petroleum, bituminous, distillates	3	-0.9628	0.9594
030420	Fish fillets, frozen	3	-1.9438	0.2196
854211	Monolithic integrated circuits, digital	2	1.1696	0.004
852810	Color TV receivers/monitors/projectors	2	-0.1188	0.7017
220421	Grape wines, <2l pack	2	-0.7438	0.0515
240220	Cigarettes	2	-0.9993	2.4739
854430	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.0088
030410	Fish meat, not liver or roe	2	-1.5169	0.2493
620342	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.8699
260300	Copper ores	2	-1.9059	8.8485
610910	T-shirts, of cotton, knit	2	-1.9099	0.4313
160414	Tuna, preserved	2	-2.291	0.0758
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.1121
847199	Automatic data processing machines	1	1.114	0.3658
847330	Parts of data processing equipment	1	1.0757	0.1444
854140	Photosensitive/PV/LED semiconductor device	1	1.07	0.132
870829	Parts of motor vehicle bodies	1	1.0007	0.0152
870899	Motor vehicle parts n.e.s.	1	0.7992	0.3224
852520	Transmit-receive apparatus for radio, TV	1	0.6469	0.4207
392690	Plastic articles, n.e.s.	1	0.5935	0.1805
401110	Rubber tires, cars, new	1	0.566	2.4954
480252	Paper, fine, woodfree, 40-150 g/m2, uncoated	1	0.5614	0.1365
440320	Logs, coniferous	1	0.514	0
300490	Medicaments, doses, n.e.s.	1	0.4785	1.9417
901890	Instruments for medical science, n.e.s.	1	0.249	0.1228
950390	Toys n.e.s.	1	0.2169	0.3715
853620	Automatic circuit breakers, <1kV	1	0.216	0.0317
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0524
040500	Butter, milk fats & oils	1	0.0521	0.0065
280920	Phosphoric acid	1	-0.4714	0.0083
283620	Disodium carbonate	1	-0.5831	0.013

271600	Electrical energy	1	-0.6327	0.2588
020230	Boneless beef, frozen	1	-0.7787	0.5771
040221	Unsweetened milk powder, >1.5% fat	1	-0.8376	0.1663
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	0.6555
310420	Potassium chloride, >10kg	1	-0.9072	0.0022
220820	Spirits from distilling grape wine	1	-0.9832	1.1582
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.3506

Industry Code	Industry Name	Paths	PCI	RCA
240210	Cigars	1	-0.9983	0.4531
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	0.2623
080610	Grapes, fresh	1	-1.1527	0.0253
080920	Cherries, fresh	1	-1.2999	0
640610	Footwear uppers	1	-1.3223	0.0003
721420	Bar/rod, iron/non-alloy steel, indent/twisted	1	-1.325	0.0025
020442	Mutton, bone-in, frozen	1	-1.4214	0
251010	Calcium phosphate, unground	1	-1.4789	0
170199	Refined sugar, pure sucrose	1	-1.5756	0.002
081090	Fruits, fresh n.e.s.	1	-1.6843	0
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0888
620520	Men's shirts, cotton, not knit	1	-1.7751	0.7231
271112	Propane, liquefied	1	-1.8916	0
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	0.1537
030232	Yellowfin tuna	1	-2.0242	25.3939
030342	Yellowfin tuna, frozen	1	-2.1126	15.8768
030343	Bonito, frozen	1	-2.1609	4.592
271111	Natural gas, liquefied	1	-2.2934	0
151190	Palm oil, simply refined	1	-2.3036	0.0344
260200	Manganese ores	1	-2.5179	0

**Table B.6. Potential Export Industries for Panama Suggested by Closest Countries in Resource Endowment in 2007 (Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
271000	Oils petroleum, bituminous, distillates	9	-0.9628	0.9594
852520	Transmit-receive apparatus for radio, TV	4	0.6469	0.4207
854211	Monolithic integrated circuits, digital	3	1.1696	0.004
847330	Parts of data processing equipment	3	1.0757	0.1444
870899	Motor vehicle parts n.e.s.	2	0.7992	0.3224
220421	Grape wines, <2l pack	2	-0.7438	0.0515
271111	Natural gas, liquefied	2	-2.2934	0
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0001
851790	Parts of telephone line equipment	1	1.0956	0.8073
854140	Photosensitive/PV/LED semiconductor device	1	1.07	0.132
841112	Turbo-jet engine, >25 KN	1	0.7913	0
880330	Aircraft parts n.e.s.	1	0.772	0.0115
910121	Wrist-watch, precious metal, automatic wound	1	0.7554	0.1582
392690	Plastic articles, n.e.s.	1	0.5935	0.1805
401110	Rubber tires, cars, new	1	0.566	2.4954
480252	Paper, fine, woodfree, 40-150 g/m2, uncoated	1	0.5614	0.1365
440320	Logs, coniferous	1	0.514	0
300490	Medicaments, doses, n.e.s.	1	0.4785	1.9417
852990	Parts for radio/TV transmit/receive equipment	1	0.3747	0.1143
970110	Paintings/drawings/pastels, by hand	1	0.2592	0.0421
901890	Instruments for medical science, n.e.s.	1	0.249	0.1228
853620	Automatic circuit breakers, <1kV	1	0.216	0.0317
330499	Make-up, n.e.s.	1	0.1699	0.6567
040500	Butter, milk fats & oils	1	0.0521	0.0065
040690	Cheese not fresh or processed	1	0.0178	0.0077
852810	Color TV receivers/monitors/projectors	1	-0.1188	0.7017
271600	Electrical energy	1	-0.6327	0.2588
20230	Boneless beef, frozen	1	-0.7787	0.5771
281410	Anhydrous ammonia	1	-0.8158	0.0005
040221	Unsweetened milk powder, >1.5% fat	1	-0.8376	0.1663
310210	Urea, >10kg	1	-0.9008	0
240210	Cigars	1	-0.9983	0.4531
080610	Grapes, fresh	1	-1.1527	0.0253
290511	Methyl alcohol	1	-1.2183	0



080920	Cherries, fresh	1	-1.2999	0
020442	Mutton, bone-in, frozen	1	-1.4214	0
030410	Fish meat, not liver or roe	1	-1.5169	0.2493
081090	Fruits, fresh n.e.s.	1	-1.6843	0
260300	Copper ores	1	-1.9059	8.8485
610910	T-shirts, of cotton, knit	1	-1.9099	0.4313
030420	Fish fillets, frozen	1	-1.9438	0.2196
030269	Whole fish, n.e.s.	1	-1.9593	4.1122
151190	Palm oil, simply refined	1	-2.3036	0.0344
520100	Cotton, not carded/combed	1	-2.4363	0

**Table B.7. Closest Countries to Costa Rica's 2019 Resource Endowment, for 2019 and 2007 (Costa Rica ECI = \$0.3591\$)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
FJI	Fiji	0.1466	-0.6300
ECU	Ecuador	0.1548	-0.8827
LKA	Sri Lanka	0.1603	-0.6790
DOM	Dominican Republic	0.1974	-0.2429
CHN	China	0.2172	1.0370
MUS	Mauritius	0.2753	-0.4536
TJK	Tajikistan	0.298	-0.6270
JAM	Jamaica	0.3331	-0.4245
PER	Peru	0.3535	-0.4412
EGY	Egypt	0.3634	-0.1643
JOR	Jordan	0.3687	-0.1241
COL	Colombia	0.3838	0.2091
PHL	Philippines	0.3873	0.5351
VNM	Vietnam	0.4827	-0.1072
BWA	Botswana	0.5151	-0.2606
IDN	Indonesia	0.5159	-0.0155
MEX	Mexico	0.5492	1.1481
<b>Lagged 2007 List</b>			
JOR	Jordan	0.1318	-0.1241
MUS	Mauritius	0.2414	-0.4536
DOM	Dominican Republic	0.2705	-0.2429
BWA	Botswana	0.2801	-0.2606
ECU	Ecuador	0.4198	-0.8827
JAM	Jamaica	0.4594	-0.4245
LKA	Sri Lanka	0.4887	-0.6790
MYS	Malaysia	0.5399	1.0920
COL	Colombia	0.6289	0.2091
CHL	Chile	0.6349	0.0577
TJK	Tajikistan	0.6428	-0.6270
ALB	Albania	0.646	-0.6992

MEX	Mexico	0.6596	1.1481
ARM	Armenia	0.6864	-0.3205
FJI	Fiji	0.7006	-0.6300
PER	Peru	0.7019	-0.4412
PHL	Philippines	0.7535	0.5351

**Table B.8. Closest Countries to Dominican Republic's 2019 Resource Endowment, for 2019 and 2007  
(Dominican Republic ECI = -0.2429)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
LKA	Sri Lanka	0.1752	-0.6790
MUS	Mauritius	0.1843	-0.4536
CRI	Costa Rica	0.1974	0.3591
FJI	Fiji	0.2009	-0.6300
TJK	Tajikistan	0.2849	-0.6270
ECU	Ecuador	0.2854	-0.8827
JOR	Jordan	0.3057	-0.1241
CHN	China	0.3121	1.0370
BWA	Botswana	0.3254	-0.2606
MEX	Mexico	0.3642	1.1481
PER	Peru	0.3838	-0.4412
COL	Colombia	0.4226	0.2091
EGY	Egypt	0.4492	-0.1643
ARM	Armenia	0.477	-0.3205
JAM	Jamaica	0.5096	-0.4245
PHL	Philippines	0.5415	0.5351
ZAF	South Africa	0.583	0.3421
<b>Lagged 2007 List</b>			
CRI	Costa Rica	0.2705	0.3591
JOR	Jordan	0.3134	-0.1241
BWA	Botswana	0.3294	-0.2606
MYS	Malaysia	0.4886	1.0920
MUS	Mauritius	0.489	-0.4536
CHL	Chile	0.5374	0.0577
ALB	Albania	0.5851	-0.6992
ECU	Ecuador	0.6308	-0.8827
MEX	Mexico	0.6388	1.1481
LKA	Sri Lanka	0.6692	-0.6790
TJK	Tajikistan	0.6736	-0.6270
ARM	Armenia	0.6936	-0.3205

JAM	Jamaica	0.7064	-0.4245
PRT	Portugal	0.7751	0.3593
PER	Peru	0.8203	-0.4412
HRV	Croatia	0.8504	0.7557
VEN	Venezuela	0.8806	-1.0123

**Table B.9. Closest Countries to Panama's 2019 Resource Endowment, for 2019 and 2007 (Panama ECI = -0.1420)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
CHL	Chile	0.2095	0.0577
TUR	Turkey	0.3893	0.4328
MYS	Malaysia	0.5108	1.0920
NZL	New Zealand	0.538	0.3963
BWA	Botswana	0.5421	-0.2606
MLT	Malta	0.6085	0.6673
PRT	Portugal	0.6098	0.3593
MDV	Maldives	0.6297	-2.0007
ARM	Armenia	0.6436	-0.3205
MEX	Mexico	0.646	1.1481
ALB	Albania	0.7057	-0.6992
HRV	Croatia	0.748	0.7557
JOR	Jordan	0.7642	-0.1241
MUS	Mauritius	0.7703	-0.4536
ZAF	South Africa	0.7973	0.3421
DOM	Dominican Republic	0.8454	-0.2429
POL	Poland	0.8663	1.1230
<b>Lagged 2007 List</b>			
NZL	New Zealand	0.2074	0.3963
CYP	Cyprus	0.4255	0.5454
SVN	Slovenia	0.4489	1.5102
HRV	Croatia	0.493	0.7557
PRT	Portugal	0.4995	0.3593
ISR	Israel	0.5617	1.2494
KOR	South Korea	0.7066	1.9009
GRC	Greece	0.7237	0.1190
SVK	Slovakia	0.7937	1.3490
ESP	Spain	0.8286	0.7422
GBR	United Kingdom	0.8766	1.4366
MAC	Macao	0.883	0.2202

CHL	Chile	0.8915	0.0577
TTO	Trinidad and Tobago	0.915	0.3641
MYS	Malaysia	0.9461	1.0920
DOM	Dominican Republic	0.9839	-0.2429
NLD	Netherlands	0.9997	1.2187

**Table B.10. Top 20 Potential Export Industries for Costa Rica Identified through Lagged and Concurrent Analysis: Method 2**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
85	852390	Unrecorded sound recording media	1			1.5214	0.1316	1.1623
85	853224	Electric capacitors, ceramic, multilayer	1			1.3947	0.0099	1.0356
84	847191			Digital computer CPU, some storage/input/output	1	1.3658	0.0176	1.0067
85	854129			Transistors, >1 watt	1	1.3053	0.0107	0.9462
85	854211	Monolithic integrated circuits, digital	3	Monolithic integrated circuits, digital	2	1.1696	0.1068	0.8105
85	851790	Parts of telephone line equipment	2			1.0956	0.1031	0.7365
84	847330	Parts of data processing equipment	4	Parts of data processing equipment	2	1.0757	0.1538	0.7166
85	854140			Photosensitive/PV/LED semiconductor device	1	1.07	0.049	0.7109
85	850440	Static converters, n.e.s.	2	Static converters, n.e.s.	1	0.9852	0.0958	0.6261
84	847193	Computer data storage units	2			0.9144	0.0155	0.5553
39	390410			Polyvinyl chloride	1	0.7215	0.0395	0.3624
85	852520	Transmit-receive apparatus for radio, TV	5	Transmit-receive apparatus for radio, TV	1	0.6469	0.0165	0.2878
39	392690			Plastic articles, n.e.s.	1	0.5935	1.9143	0.2344



30	300490			Medicaments, doses, n.e.s.	1	0.4785	0.4894	0.1194
85	852990	Parts for radio/TV transmit/receive equipment	3			0.3747	0.0759	0.0156
40	401290			Tires, interchangeable treads	1	0.3285	0.0253	-0.0306
85	853620			Automatic circuit breakers, <1kV	1	0.216	0.4686	-0.1431
85	851782			Telegraphic apparatus, n.e.s.	1	0.0579	0.0036	-0.3012
85	852810	Color TV receivers/ monitors/projectors	3			-0.1188	0.0511	-0.4779
64	640411	Sports footwear, upper textile	2			-0.7864	0.001	-1.1455
31	310210	Urea, >10kg	2			-0.9008	0.0581	-1.2599
64	640399	Footwear, uppers of leather, n.e.s.	2			-0.9024	0.016	-1.2615

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
27	271000			Oils petroleum, bituminous, distillates	6	-0.9628	0.0037	-1.3219
85	854430	Ignition sets for vehicles/aircraft/ship	4	Ignition sets for vehicles/aircraft/ship	3	-1.141	0.1243	-1.5001
71	710391	Rubies, sapphires & emeralds, worked, not set	2			-1.2983	0	-1.6574

60	60310			Flowers for bouquets (fresh)	2	-1.7099	3.547	-2.069
62	620342	Men's trousers & shorts, cotton, not knit	4	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.0441	-2.1048
61	610510	Men's shirts, cotton, knit	2			-1.8315	0.0132	-2.1906
61	610910	T-shirts, of cotton, knit	3	T-shirts, of cotton, knit	2	-1.9099	0.0194	-2.269
61	611020	Pullovers, cardigans, of cotton, knit	2			-1.9164	0.0035	-2.2755
62	620462	Women's trousers & shorts, cotton, not knit	2			-1.9493	0.0088	-2.3084
16	160414			Tuna, preserved	3	-2.291	3.0756	-2.6501
27	271111			Natural gas, liquefied	2	-2.2934	0	-2.6525

**Table B.11. Top 20 Potential Export Industries for Dominican Republic Identified through Lagged and Concurrent Analysis: Method 2**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
84	847191	Digital computer CPU, some storage/input/output	1	Digital computer CPU, some storage/input/output	1	1.3658	0.0009	1.6087
85	854129	Transistors, >1 watt	1			1.3053	0.0003	1.5482
85	854211	Monolithic integrated circuits, digital	2	Monolithic integrated circuits, digital	1	1.1696	0.002	1.4125
85	851790	Parts of telephone line equipment	1			1.0956	0.0197	1.3385
84	847330	Parts of data processing equipment	2	Parts of data processing equipment	1	1.0757	0.0044	1.3186
85	854140			Photosensitive/PV/LED semiconductor device	1	1.07	0.2307	1.3129
85	850440	Static converters, n.e.s.	1			0.9852	0.0788	1.2281
84	847193	Computer data storage units	1			0.9144	0.0046	1.1573
87	870899			Motor vehicle parts n.e.s.	1	0.7992	0.2074	1.0421
39	390410	Polyvinyl chloride	1			0.7215	0.0043	0.9644

85	852520	Transmit-receive apparatus for radio, TV	1	Transmit-receive apparatus for radio, TV	1	0.6469	0.0679	0.8898
40	401110			Rubber tires, cars, new	1	0.566	0.0102	0.8089
48	480252			Paper, fine, woodfree, 40–150 g/m2, uncoated	1	0.5614	0.0716	0.8043
30	300490	Medicaments, doses, n.e.s.	1	Medicaments, doses, n.e.s.	2	0.4785	0.1696	0.7214
40	401290			Tires, interchangeable treads	1	0.3285	0.0351	0.5714
90	902130			Artificial body parts, aids	1	0.3247	0.1188	0.5676
85	852810	Color TV receivers/monitors/projectors	2			-0.1188	0.0169	0.1241
27	271000	Oils petroleum, bituminous, distillates	7	Oils petroleum, bituminous, distillates	7	-0.9628	0.0509	-0.7199
85	854430	Ignition sets for vehicles/aircraft/ship	3	Ignition sets for vehicles/ aircraft/ship	2	-1.1410	0.0684	-0.8981
26	260800	Zinc ores	2	Zinc ores	2	-1.2748	1.0405	-1.0319

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
06	060310	Flowers for bouquets (fresh)	2			-1.7099	0.0668	-1.4670
26	260111	Iron ore, unagglomerated	2	Iron ore, unagglomerated	2	-1.7388	0	-1.4959
62	620342			Men's trousers & shorts, cotton, not knit	2	-1.7457	0.5632	-1.5028
26	260300	Copper ores	2	Copper ores	3	-1.9059	1.8729	-1.6630
03	030613			Shrimps, frozen	2	-2.1623	0.0206	-1.9194
16	160414	Tuna, preserved	3	Tuna, preserved	2	-2.2910	0.0026	-2.0481

27	271111	Natural gas, liquefied	2	Natural gas, liquefied	2	-2.2934	0.0679	-2.0505
09	090111	Coffee, not roasted	2			-2.5829	0.3101	-2.3400

**Table B.12. Top 20 Potential Export Industries for Panama Identified through Lagged and Concurrent Analysis: Method 2**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
90	901020			Equipment for photographic laboratories n.e.s.	1	1.7947	0.0001	0.1421
84	847191	Digital computer CPU, some storage/input/output	1			1.3658	0.1121	0.2541
85	854211	Monolithic integrated circuits, digital	2	Monolithic integrated circuits, digital	3	1.1696	0.004	0.1460
84	847199	Automatic data processing machines	1			1.1140	0.3658	0.5078
85	851790			Parts of telephone line equipment	1	1.0956	0.8073	0.9493
84	847330	Parts of data processing equipment	1	Parts of data processing equipment	3	1.0757	0.1444	0.2864
85	854140	Photosensitive/PV/LED semiconductor device	1	Photosensitive/PV/LED semiconductor device	1	1.0700	0.132	0.2740
87	870829	Parts of motor vehicle bodies	1			1.0007	0.0152	0.1572
87	870899	Motor vehicle parts n.e.s.	1	Motor vehicle parts n.e.s.	2	0.7992	0.3224	0.4644
84	841112			Turbo-jet engine, >25 KN	1	0.7913	0	0.1420
88	880330			Aircraft parts n.e.s.	1	0.7720	0.0115	0.1535
91	910121			Wrist-watch, precious	1	0.7554	0.1582	0.3002

				metal, automatic wound				
85	852520	Transmit-receive apparatus for radio, TV	1	Transmit-receive apparatus for radio, TV	4	0.6469	0.4207	0.5627
39	392690	Plastic articles, n.e.s.	1	Plastic articles, n.e.s.	1	0.5935	0.1805	0.3225
40	401110			Rubber tires, cars, new	1	0.5660	2.4954	2.6374
48	480252			Paper, fine, woodfree, 40-150 g/m2, uncoated	1	0.5614	0.1365	0.2785
44	440320			Logs, coniferous	1	0.5140	0	0.1420
30	300490			Medicaments, doses, n.e.s.	1	0.4785	1.9417	2.0837
85	852990			Parts for radio/TV transmit/receive equipment	1	0.3747	0.1143	0.2563
97	970110			Paintings/drawings/pastels, by hand	1	0.2592	0.0421	0.1841
85	852810	Color TV receivers/monitors/projectors	2			-0.1188	0.7017	0.8437

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
22	220421	using	2	Grape wines, <2l pack	2	-0.7438	0.0515	0.1935
27	271000	Oils petroleum, bituminous, distillates	3	Oils petroleum, bituminous, distillates	9	-0.9628	0.9594	1.1014
24	240220	Cigarettes	2			-0.9993	2.4739	2.6159
85	854430	Ignition sets for vehicles/aircraft/ship	2			-1.1410	0.0088	0.1508
30	30410	Fish meat, not liver or roe	2			-1.5169	0.2493	0.3913
62	620342	Men's trousers & shorts, cotton, not knit	2			-1.7457	0.8699	1.0119
26	260300	Copper ores	2			-1.9059	8.8485	8.9905
61	610910	T-shirts, of cotton, knit	2			-1.9099	0.4313	0.5733
03	030420	Fish fillets, frozen	3			-1.9438	0.2196	0.3616
16	160414	Tuna, preserved	2			-2.2910	0.0758	0.2178
27	271111			Natural gas, liquefied	2	-2.2934	0	0.1420



**Table C.1. Main Other Export Industries of Countries That in 2019 Were Principal Exporters of Costa Rica's Top Sectors (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
280920	Phosphoric acid	1	-0.4714	0.0166
290511	Methyl alcohol	1	-1.2183	0.0007
293379	Lactams, n.e.s.	1	1.9298	0.0004
300220	Vaccines, human	2	0.6229	0.0027
300431	Insulin, doses	1	0.3790	0.0000
300439	Hormones, not contraceptive, doses	2	1.2183	0.1502
300490	Medicaments, doses, n.e.s.	17	0.4785	0.4894
310210	Urea, >10kg	2	-0.9008	0.0581
310420	Potassium chloride, >10kg	1	-0.9072	0.0519
330210	Mixed odors, food & drink	1	-0.2090	2.6304
340700	Model, dental paste, wax	1	1.1672	0.0472
390110	Polyethylene, <0.94 spec gravity	1	0.4631	0.0494
401110	Rubber tires, cars, new	2	0.5660	3.4021
540720	Fabric of strip etc, synthetic textile material	1	-0.8352	0.2572
570110	Carpets of wool/hair, knotted	1	-0.9571	0.0000
610910	T-shirts, of cotton, knit	3	-1.9099	0.0194
611020	Pullovers, cardigans, of cotton, knit	1	-1.9164	0.0035
611030	Pullovers, cardigans, of manmade fibers, knit	1	-1.9692	0.0489
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0754
620193	Men's anoraks, manmade fibers, not knit	1	-1.2409	0.0700
620293	Women's anoraks, manmade fibers, not knit	1	-1.1494	0.0025
620322	Men's ensembles, cotton, not knit	1	-2.2500	0.0024
620342	Men's trousers & shorts, cotton, not knit	4	-1.7457	0.0441
620462	Women's trousers & shorts, cotton, not knit	1	-1.9493	0.0088
620520	Men's shirts, cotton, not knit	1	-1.7751	0.0123
630221	Bed linen, of cotton, printed	1	-0.7389	0.0000
630231	Bed linen, of cotton, n.e.s.	1	-1.3928	0.0069
630260	Toilet/kitchen linen, of terry	1	-1.5210	0.0925
630900	Worn clothing	1	-0.5220	0.0816

640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	0.0393
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.0423
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	0.0160
640610	Footwear uppers	1	-1.3223	0.0000
840734	Engines, spark-ignition, >1000cc	1	1.4839	0.0001
841112	Turbo-jet engine, >25 KN	1	0.7913	0.0263
841480	Air compressor, hoods	1	1.1697	0.0134

Industry Code	Industry Name	Paths	PCI	RCA
847191	Digital computer CPU, some storage/input/output	3	1.3658	0.0176
847193	Computer data storage units	1	0.9144	0.0155
847330	Parts of data processing equipment	6	1.0757	0.1538
850230	Electric generating sets, n.e.s.	1	0.9209	0.0043
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0036
851790	Parts of telephone line equipment	2	1.0956	0.1031
852390	Unrecorded sound recording media	1	1.5214	0.1316
852520	Transmit-receive apparatus for radio, TV	11	0.6469	0.0165
852810	Color TV receivers/monitors/projectors	3	-0.1188	0.0511
852990	Parts for radio/TV transmit/receive equipment	1	0.3747	0.0759
853400	Electronic printed circuits	1	0.3853	0.1235
853620	Automatic circuit breakers, <1kV	1	0.2160	0.4686
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.1970
854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.0490
854211	Monolithic integrated circuits, digital	10	1.1696	0.1068
854430	Ignition sets for vehicles/aircraft/ship	5	-1.1410	0.1243
854441	Electric conductors <80V, with connectors	1	-0.2322	1.8595
870321	Automobiles, spark ignition, <1000cc	3	0.6051	0.0018
870829	Parts of motor vehicle bodies	1	1.0007	0.0115
870840	Transmissions for motor vehicles	2	1.5444	0.0021
870899	Motor vehicle parts n.e.s.	3	0.7992	0.3285
871500	Baby carriages	1	0.4169	0.0702
880330	Aircraft parts n.e.s.	2	0.7720	0.0537
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0223
901380	Optical devices, appliances and instruments, n.e.s.	1	1.5022	0.0023
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0248

940180	Seats n.e.s.	1	-0.0917	0.0950
940190	Parts of seats	1	-0.1799	0.0422
950390	Toys n.e.s.	2	0.2169	0.0255

**Table C.2. Main Other Export Industries of Countries That in 2007 Were Principal Exporters of Costa Rica's Top Sectors (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	18	0.4785	0.4894
854211	Monolithic integrated circuits, digital	11	1.1696	0.1068
852520	Transmit-receive apparatus for radio, TV	7	0.6469	0.0165
847330	Parts of data processing equipment	6	1.0757	0.1538
870321	Automobiles, spark ignition, <1000cc	4	0.6051	0.0018
847191	Digital computer CPU, some storage/input/output	3	1.3658	0.0176
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0005
870899	Motor vehicle parts n.e.s.	3	0.7992	0.3285
854430	Ignition sets for vehicles/aircraft/ship	3	-1.1410	0.1243
870840	Transmissions for motor vehicles	2	1.5444	0.0021
300439	Hormones, not contraceptive, doses	2	1.2183	0.1502
851790	Parts of telephone line equipment	2	1.0956	0.1031
870190	Wheeled tractors n.e.s.	2	1.0021	0.0405
870829	Parts of motor vehicle bodies	2	1.0007	0.0115
841112	Turbo-jet engine, >25 KN	2	0.7913	0.0263
880330	Aircraft parts n.e.s.	2	0.7720	0.0537
300220	Vaccines, human	2	0.6229	0.0027
401110	Rubber tires, cars, new	2	0.5660	3.4021
852990	Parts for radio/TV transmit/receive equipment	2	0.3747	0.0759
950390	Toys n.e.s.	2	0.2169	0.0255
330499	Make-up, n.e.s.	2	0.1699	0.1069
852810	Color TV receivers/monitors/projectors	2	-0.1188	0.0511
890190	Cargo vessels, not tanker or refrigerated	2	-1.2249	3.1087
620342	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.0441
610910	T-shirts, of cotton, knit	2	-1.9099	0.0194
520100	Cotton, not carded/combed	2	-2.4363	0.0172
293379	Lactams, n.e.s.	1	1.9298	0.0004
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0223
910811	Watch movements, battery mechanical display	1	1.6846	0.0000
852390	Unrecorded sound recording media	1	1.5214	0.1316

901380	Optical devices, appliances and instruments, n.e.s.	1	1.5022	0.0023
903180	Measuring equipment, n.e.s.	1	1.1967	0.1007
847199	Automatic data processing machines	1	1.1140	0.0276
854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.0490
850440	Static converters, n.e.s.	1	0.9852	0.0958
850230	Electric generating sets, n.e.s.	1	0.9209	0.0043
847193	Computer data storage units	1	0.9144	0.0155

Industry Code	Industry Name	Paths	PCI	RCA
850780	Electric accumulators, n.e.s.	1	0.9004	0.0506
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.1970
853400	Electronic printed circuits	1	0.3853	0.1235
300431	Insulin, doses	1	0.3790	0.0000
902300	Instruments, models, for demonstration	1	0.2879	0.8428
901890	Instruments for medical science, n.e.s.	1	0.2490	24.5707
853620	Automatic circuit breakers, <1kV	1	0.2160	0.4686
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0036
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0248
330210	Mixed odors, food & drink	1	-0.2090	2.6304
630221	Bed linen, of cotton, printed	1	-0.7389	0.0000
890200	Fishing vessels & factory ships	1	-0.8619	0.0126
310420	Potassium chloride, >10kg	1	-0.9072	0.0519
890590	Floating docks, special function vessels	1	-0.9301	0.0192
870410	Dump trucks, for off-highway use	1	-0.9678	0.0013
630231	Bed linen, of cotton, n.e.s.	1	-1.3928	0.0069
630260	Toilet/kitchen linen, of terry	1	-1.5210	0.0925
620520	Men's shirts, cotton, not knit	1	-1.7751	0.0123
970600	Antiques	1	-1.9321	0.0124
620462	Women's trousers & shorts, cotton, not knit	1	-1.9493	0.0088
620322	Men's ensembles, cotton, not knit	1	-2.2500	0.0024
670419	False beard, eyebrows, of synth textile	1	-2.3024	0.0000

**Table C.3. Main Other Export Industries of Countries That in 2019 Were Principal Exporters of Dominican Republic's Top Sectors (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	13	0.4785	0.1696
852520	Transmit-receive apparatus for radio, TV	7	0.6469	0.0679
611020	Pullovers, cardigans, of cotton, knit	7	-1.9164	3.6443
854211	Monolithic integrated circuits, digital	6	1.1696	0.0020
620342	Men's trousers & shorts, cotton, not knit	6	-1.7457	0.5632
610990	T-shirts, of material n.e.s., knit	6	-1.8570	3.2058
611030	Pullovers, cardigans, of manmade fibers, knit	6	-1.9692	1.8708
854430	Ignition sets for vehicles/aircraft/ship	5	-1.1410	0.0684
610910	T-shirts, of cotton, knit	5	-1.9099	17.7484
620462	Women's trousers & shorts, cotton, not knit	4	-1.9493	0.2244
847330	Parts of data processing equipment	3	1.0757	0.0044
852810	Color TV receivers/monitors/projectors	3	-0.1188	0.0169
620520	Men's shirts, cotton, not knit	3	-1.7751	0.9954
520100	Cotton, not carded/combed	3	-2.4363	0.0000
870840	Transmissions for motor vehicles	2	1.5444	0.0024
847191	Digital computer CPU, some storage/input/output	2	1.3658	0.0009
870829	Parts of motor vehicle bodies	2	1.0007	0.0446
293359	Heterocyclic compounds, pyrimidine ring	2	0.9082	0.0000
870899	Motor vehicle parts n.e.s.	2	0.7992	0.2074
950390	Toys n.e.s.	2	0.2169	0.1046
310210	Urea, >10kg	2	-0.9008	0.1757
610462	Women's trousers & shorts, of cotton, knit	2	-2.0954	0.0365
293379	Lactams, n.e.s.	1	1.9298	0.0000
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0003
300439	Hormones, not contraceptive, doses	1	1.2183	0.0248
841480	Air compressor, hoods	1	1.1697	0.0211
340700	Model, dental paste, wax	1	1.1672	0.0151
847199	Automatic data processing machines	1	1.1140	0.2385
851790	Parts of telephone line equipment	1	1.0956	0.0197
854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.2307

841191	Turbo-jet, -propeller engine, parts	1	0.9346	0.0008
847193	Computer data storage units	1	0.9144	0.0046
880330	Aircraft parts n.e.s.	1	0.7720	0.0012
300220	Vaccines, human	1	0.6229	0.0010
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.0698
401110	Rubber tires, cars, new	1	0.5660	0.0102
871500	Baby carriages	1	0.4169	0.0068

Industry Code	Industry Name	Paths	PCI	RCA
902130	Artificial body parts, aids	1	0.3247	0.1188
901890	Instruments for medical science, n.e.s.	1	0.2490	19.2792
901839	Medical needles, catheters	1	0.1805	5.1652
330499	Make-up, n.e.s.	1	0.1699	0.0539
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0000
940180	Seats n.e.s.	1	-0.0917	1.6246
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0316
330210	Mixed odors, food & drink	1	-0.2090	2.3471
854441	Electric conductors <80V, with connectors	1	-0.2322	1.5881
630900	Worn clothing	1	-0.5220	0.3394
630221	Bed linen, of cotton, printed	1	-0.7389	0.0000
540720	Fabric of strip etc, synthetic textile material	1	-0.8352	0.0035
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	2.2519
570110	Carpets of wool/hair, knotted	1	-0.9571	0.0000
640391	Boots, upper of leather, n.e.s.	1	-0.9846	10.5421
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	11.9861
290511	Methyl alcohol	1	-1.2183	0.0074
611593	Hosiery n.e.s., synthetic fibers, knit	1	-1.2383	0.0220
640610	Footwear uppers	1	-1.3223	10.7509
630231	Bed linen, of cotton, n.e.s.	1	-1.3928	0.0243
630260	Toilet/kitchen linen, of terry	1	-1.5210	0.0238
620343	Men's trousers & shorts, synthetic fiber, not knit	1	-1.6887	3.9720
610510	Men's shirts, cotton, knit	1	-1.8315	0.2618
610463	Women's trousers & shorts, synthetic fibers, knit	1	-1.9116	1.0519

520300	Cotton, carded/combed	1	-2.0971	0.0000
610520	Men's shirts, manmade fibers, knit	1	-2.2362	0.3535
620322	Men's ensembles, cotton, not knit	1	-2.2500	1.0820



**Table C. 4. Main Other Export Industries of Countries That in 2007 Were Principal Exporters of Dominican Republic's Top Sectors (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	17	0.4785	0.1696
852520	Transmit-receive apparatus for radio, TV	9	0.6469	0.0679
854211	Monolithic integrated circuits, digital	8	1.1696	0.0020
610910	T-shirts, of cotton, knit	7	-1.9099	17.7484
611020	Pullovers, cardigans, of cotton, knit	7	-1.9164	3.6443
611030	Pullovers, cardigans, of manmade fibers, knit	7	-1.9692	1.8708
620342	Men's trousers & shorts, cotton, not knit	6	-1.7457	0.5632
610990	T-shirts, of material n.e.s., knit	6	-1.8570	3.2058
847330	Parts of data processing equipment	4	1.0757	0.0044
854430	Ignition sets for vehicles/aircraft/ship	4	-1.1410	0.0684
620462	Women's trousers & shorts, cotton, not knit	4	-1.9493	0.2244
847191	Digital computer CPU, some storage/input/output	3	1.3658	0.0009
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0008
852810	Color TV receivers/monitors/projectors	3	-0.1188	0.0169
520100	Cotton, not carded/combed	3	-2.4363	0.0000
870840	Transmissions for motor vehicles	2	1.5444	0.0024
870190	Wheeled tractors n.e.s.	2	1.0021	0.0000
870829	Parts of motor vehicle bodies	2	1.0007	0.0446
293359	Heterocyclic compounds, pyrimidine ring	2	0.9082	0.0000
870899	Motor vehicle parts n.e.s.	2	0.7992	0.2074
880330	Aircraft parts n.e.s.	2	0.7720	0.0012
300220	Vaccines, human	2	0.6229	0.0010
330499	Make-up, n.e.s.	2	0.1699	0.0539
310420	Potassium chloride, >10kg	2	-0.9072	0.1061
620520	Men's shirts, cotton, not knit	2	-1.7751	0.9954
610462	Women's trousers & shorts, of cotton, knit	2	-2.0954	0.0365
293379	Lactams, n.e.s.	1	1.9298	0.0000
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0003
910811	Watch movements, battery mechanical display	1	1.6846	0.0000

852390	Unrecorded sound recording media	1	1.5214	0.0097
901380	Optical devices, appliances and instruments, n.e.s.	1	1.5022	0.0002
300439	Hormones, not contraceptive, doses	1	1.2183	0.0248
903180	Measuring equipment, n.e.s.	1	1.1967	0.0328
847199	Automatic data processing machines	1	1.1140	0.2385
851790	Parts of telephone line equipment	1	1.0956	0.0197
854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.2307
850230	Electric generating sets, n.e.s.	1	0.9209	0.0003

Industry Code	Industry Name	Paths	PCI	RCA
850780	Electric accumulators, n.e.s.	1	0.9004	0.0357
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.0698
853400	Electronic printed circuits	1	0.3853	0.0018
300431	Insulin, doses	1	0.3790	0.0000
852990	Parts for radio/TV transmit/receive equipment	1	0.3747	0.0162
401290	Tires, interchangeable treads	1	0.3285	0.0351
902130	Artificial body parts, aids	1	0.3247	0.1188
902300	Instruments, models, for demonstration	1	0.2879	0.3825
901890	Instruments for medical science, n.e.s.	1	0.2490	19.2792
950390	Toys n.e.s.	1	0.2169	0.1046
853620	Automatic circuit breakers, <1kV	1	0.2160	99.1844
901839	Medical needles, catheters	1	0.1805	5.1652
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0000
340220	Washing prep, retail	1	-0.1226	0.3767
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0316
330210	Mixed odors, food & drink	1	-0.2090	2.3471
854441	Electric conductors <80V, with connectors	1	-0.2322	1.5881
280920	Phosphoric acid	1	-0.4714	0.0153
630221	Bed linen, of cotton, printed	1	-0.7389	0.0000
540720	Fabric of strip etc, synthetic textile material	1	-0.8352	0.0035
570110	Carpets of wool/hair, knotted	1	-0.9571	0.0000
870410	Dump trucks, for off-highway use	1	-0.9678	0.0000
611593	Hosiery n.e.s., synthetic fibers, knit	1	-1.2383	0.0220
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.1320
611010	Pullovers, cardigans, of wool/hair, knit	1	-1.3227	0.0070

630231	Bed linen, of cotton, n.e.s.	1	-1.3928	0.0243
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.0327
621210	Brassieres	1	-1.5063	8.1762
630260	Toilet/kitchen linen, of terry	1	-1.5210	0.0238
620343	Men's trousers & shorts, synthetic fiber, not knit	1	-1.6887	3.9720
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.1209
610510	Men's shirts, cotton, knit	1	-1.8315	0.2618
610463	Women's trousers & shorts, synthetic fibers, knit	1	-1.9116	1.0519
970600	Antiques	1	-1.9321	0.0005
520300	Cotton, carded/combed	1	-2.0971	0.0000
610520	Men's shirts, manmade fibers, knit	1	-2.2362	0.3535
620322	Men's ensembles, cotton, not knit	1	-2.2500	1.0820
710310	Precious, semi-precious stones, unworked	1	-2.2790	1.5818
670419	False beard, eyebrows, of synth textile	1	-2.3024	3.8208

**Table C. 5. Main Other Export Industries of Countries That in 2019 Were Principal Exporters of Panama's Top Sectors (Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
852520	Transmit-receive apparatus for radio, TV	14	0.6469	0.4207
854211	Monolithic integrated circuits, digital	11	1.1696	0.0040
300490	Medicaments, doses, n.e.s.	9	0.4785	1.9417
847330	Parts of data processing equipment	8	1.0757	0.1444
851790	Parts of telephone line equipment	4	1.0956	0.8073
852810	Color TV receivers/monitors/projectors	4	-0.1188	0.7017
854430	Ignition sets for vehicles/aircraft/ship	4	-1.1410	0.0088
870899	Motor vehicle parts n.e.s.	3	0.7992	0.3224
640399	Footwear, uppers of leather, n.e.s.	3	-0.9024	0.6555
611030	Pullovers, cardigans, of manmade fibers, knit	3	-1.9692	0.1537
847191	Digital computer CPU, some storage/input/output	2	1.3658	0.1121
870829	Parts of motor vehicle bodies	2	1.0007	0.0152
841112	Turbo-jet engine, >25 KN	2	0.7913	0.0000
880330	Aircraft parts n.e.s.	2	0.7720	0.0115
300220	Vaccines, human	2	0.6229	0.3535
401110	Rubber tires, cars, new	2	0.5660	2.4954
852990	Parts for radio/TV transmit/receive equipment	2	0.3747	0.1143
950390	Toys n.e.s.	2	0.2169	0.3715
310210	Urea, >10kg	2	-0.9008	0.0000
640610	Footwear uppers	2	-1.3223	0.0003
620342	Men's trousers & shorts, cotton, not knit	2	-1.7457	0.8699
610990	T-shirts, of material n.e.s., knit	2	-1.8570	1.0774
620462	Women's trousers & shorts, cotton, not knit	2	-1.9493	1.4999
293379	Lactams, n.e.s.	1	1.9298	0.0073
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0001
841480	Air compressor, hoods	1	1.1697	0.0403
340700	Model, dental paste, wax	1	1.1672	0.9434
847199	Automatic data processing machines	1	1.1140	0.3658
854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.1320
850440	Static converters, n.e.s.	1	0.9852	0.2726
841191	Turbo-jet, -propeller engine, parts	1	0.9346	0.0016

847193	Computer data storage units	1	0.9144	0.6094
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.0363
290531	Ethanediol	1	0.5826	0.0000
871500	Baby carriages	1	0.4169	1.0994
401290	Tires, interchangeable treads	1	0.3285	0.1580
902130	Artificial body parts, aids	1	0.3247	0.3440

Industry Code	Industry Name	Paths	PCI	RCA
901890	Instruments for medical science, n.e.s.	1	0.2490	0.1228
853620	Automatic circuit breakers, <1kV	1	0.2160	0.0317
901839	Medical needles, catheters	1	0.1805	0.2179
940360	Furniture, wooden, n.e.s.	1	0.1749	0.0809
330499	Make-up, n.e.s.	1	0.1699	0.6567
940161	Upholstered seats with wooden frames	1	0.1659	0.0068
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0524
940180	Seats n.e.s.	1	-0.0917	0.3155
940600	Prefabricated buildings	1	-0.1161	0.0782
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0790
330210	Mixed odors, food & drink	1	-0.2090	0.2304
854441	Electric conductors <80V, with connectors	1	-0.2322	0.0999
382390	Chemical products, n.e.s.	1	-0.2594	0.1503
280920	Phosphoric acid	1	-0.4714	0.0083
854449	Electric conductors, <80V, no connectors	1	-0.5173	0.3577
630900	Worn clothing	1	-0.5220	0.1130
640411	Sports footwear, upper textile	1	-0.7864	4.5292
310420	Potassium chloride, >10kg	1	-0.9072	0.0022
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.3506
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	0.2623
620293	Women's anoraks, manmade fibers, not knit	1	-1.1494	0.0627
290511	Methyl alcohol	1	-1.2183	0.0000
620193	Men's anoraks, manmade fibers, not knit	1	-1.2409	0.0366
611610	Gloves impregnated with plastic/rubber, knit	1	-1.2721	0.1404
610821	Women's briefs or panties, cotton, knit	1	-1.4185	0.5473

640419	Footwear, uppers of textile	1	-1.4207	1.2774
621210	Brassieres	1	-1.5063	1.1358
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0888
610910	T-shirts, of cotton, knit	1	-1.9099	0.4313
610463	Women's trousers & shorts, synthetic fibers, knit	1	-1.9116	0.1713
611020	Pullovers, cardigans, of cotton, knit	1	-1.9164	1.1255
610520	Men's shirts, manmade fibers, knit	1	-2.2362	0.2144
520100	Cotton, not carded/combed	1	-2.4363	0.0000

**Table C. 6. Main Other Export Industries of Countries That in 2007 Were Principal Exporters of Panama's Top Sectors (Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	15	0.4785	1.9417
854211	Monolithic integrated circuits, digital	9	1.1696	0.0040
852520	Transmit-receive apparatus for radio, TV	8	0.6469	0.4207
847330	Parts of data processing equipment	5	1.0757	0.1444
852810	Color TV receivers/monitors/projectors	4	-0.1188	0.7017
851790	Parts of telephone line equipment	3	1.0956	0.8073
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0016
870899	Motor vehicle parts n.e.s.	3	0.7992	0.3224
852990	Parts for radio/TV transmit/receive equipment	3	0.3747	0.1143
854430	Ignition sets for vehicles/aircraft/ship	3	-1.1410	0.0088
847191	Digital computer CPU, some storage/input/output	2	1.3658	0.1121
870190	Wheeled tractors n.e.s.	2	1.0021	0.0143
870829	Parts of motor vehicle bodies	2	1.0007	0.0152
841112	Turbo-jet engine, >25 KN	2	0.7913	0.0000
880330	Aircraft parts n.e.s.	2	0.7720	0.0115
300220	Vaccines, human	2	0.6229	0.3535
401110	Rubber tires, cars, new	2	0.5660	2.4954
950390	Toys n.e.s.	2	0.2169	0.3715
330499	Make-up, n.e.s.	2	0.1699	0.6567
640399	Footwear, uppers of leather, n.e.s.	2	-0.9024	0.6555
310420	Potassium chloride, >10kg	2	-0.9072	0.0022
611030	Pullovers, cardigans, of manmade fibers, knit	2	-1.9692	0.1537
520100	Cotton, not carded/combed	2	-2.4363	0.0000
293379	Lactams, n.e.s.	1	1.9298	0.0073
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0001
910811	Watch movements, battery mechanical display	1	1.6846	0.0046
300439	Hormones, not contraceptive, doses	1	1.2183	0.1384
903180	Measuring equipment, n.e.s.	1	1.1967	0.0347
847199	Automatic data processing machines	1	1.1140	0.3658

854140	Photosensitive/PV/LED semiconductor device	1	1.0700	0.1320
847193	Computer data storage units	1	0.9144	0.6094
850780	Electric accumulators, n.e.s.	1	0.9004	0.1989
848590	Machinery parts, non-electrical, n.e.s.	1	0.8696	0.2497
890130	Refrigerated vessels	1	0.6269	37.8089
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.0363
902130	Artificial body parts, aids	1	0.3247	0.3440
902300	Instruments, models, for demonstration	1	0.2879	0.0670

Industry Code	Industry Name	Paths	PCI	RCA
901890	Instruments for medical science, n.e.s.	1	0.2490	0.1228
901839	Medical needles, catheters	1	0.1805	0.2179
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0524
340220	Washing prep, retail	1	-0.1226	0.0426
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.0790
940190	Parts of seats	1	-0.1799	0.0031
330210	Mixed odors, food & drink	1	-0.2090	0.2304
890392	Motorboats	1	-0.3787	0.3587
961700	Vacuum flasks	1	-0.4243	0.3575
280920	Phosphoric acid	1	-0.4714	0.0083
640411	Sports footwear, upper textile	1	-0.7864	4.5292
870410	Dump trucks, for off-highway use	1	-0.9678	0.2777
310230	Ammonium nitrate, >10kg	1	-0.9824	0.0000
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.3506
640340	Footwear, uppers of leather, metal toe-cap	1	-1.1083	0.2623
970500	Collections & collectors pieces	1	-1.1988	0.0100
640610	Footwear uppers	1	-1.3223	0.0003
640419	Footwear, uppers of textile	1	-1.4207	1.2774
330129	Oils, n.e.s.	1	-1.4875	0.1225
611420	Garments n.e.s., of cotton, knit	1	-1.7542	0.0888
610990	T-shirts, of material n.e.s., knit	1	-1.8570	1.0774
610910	T-shirts, of cotton, knit	1	-1.9099	0.4313
611020	Pullovers, cardigans, of cotton, knit	1	-1.9164	1.1255
970600	Antiques	1	-1.9321	0.0007
620462	Women's trousers & shorts, cotton, not knit	1	-1.9493	1.4999



670419	False beard, eyebrows, of synth textile	1	-2.3024	0.2333
400129	Natural rubber, n.e.s.	1	-2.6213	0.0000

**Table C.7. Exporting Countries of Any of Costa Rica's Top Manufacturing Exports, for 2019 and 2007 (Costa Rica ECI = 0.3591)**

Country Code	Country Name	Industries	ECI
Concurrent 2019 List			
MEX	Mexico	8	1.1481
ESH	Western Sahara	8	1.3905
TWN	Taiwan	8	1.8668
IRL	Ireland	7	1.2039
SVK	Slovakia	7	1.3490
HUN	Hungary	7	1.4130
CZE	Czech Republic	7	1.7240
PAK	Pakistan	6	-0.5985
JOR	Jordan	6	-0.1241
ROU	Romania	6	0.9451
HKG	Hong Kong	6	1.0334
CHN	China	6	1.0370
NLD	Netherlands	6	1.2187
ISR	Israel	6	1.2494
SVN	Slovenia	6	1.5102
AUT	Austria	6	1.6106
DEU	Germany	6	1.9564
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.2620
NIC	Nicaragua	5	-1.1868
ALB	Albania	5	-0.6992
TUN	Tunisia	5	-0.0201
IRN	Iran	5	0.0128
PRT	Portugal	5	0.3593
THA	Thailand	5	0.8947
DNK	Denmark	5	1.0702
ITA	Italy	5	1.1546
BEL	Belgium	5	1.4101
GBR	United Kingdom	5	1.4366
SWE	Sweden	5	1.6567

SGP	Singapore	5	1.8842
MUS	Mauritius	4	-0.4536
CAN	Canada	4	1.0867
MYS	Malaysia	4	1.0920
MMR	Myanmar	3	-1.1013
DOM	Dominican Republic	3	-0.2429

Country Code	Country Name	Industries	ECI
AUS	Australia	3	0.0577
ARG	Argentina	3	0.1512
IND	India	3	0.4834
SRB	Serbia	3	0.7152
USA	United States of America	3	1.6362
NPL	Nepal	2	-0.4896
MDA	Moldova	2	-0.1924
PAN	Panama	2	-0.1420
QAT	Qatar	2	0.1604
CUB	Cuba	1	-0.6681
IDN	Indonesia	1	-0.0155
RUS	Russian Federation	1	0.7816
FIN	Finland	1	1.5464
<b>Lagged 2007 List</b>			
TWN	Taiwan	9	1.8668
MEX	Mexico	8	1.1481
IRL	Ireland	7	1.2039
CZE	Czech Republic	7	1.7240
PAK	Pakistan	6	-0.5985
ARE	United Arab Emirates	6	0.2803
ROU	Romania	6	0.9451
CHN	China	6	1.0370
DNK	Denmark	6	1.0702
POL	Poland	6	1.1230

NLD	Netherlands	6	1.2187
ISR	Israel	6	1.2494
SVN	Slovenia	6	1.5102
AUT	Austria	6	1.6106
DEU	Germany	6	1.9564
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.2620
UZB	Uzbekistan	5	-0.6123
GUM	Guam	5	0.3526
PRT	Portugal	5	0.3593
PHL	Philippines	5	0.5351
ESP	Spain	5	0.7422
BLR	Belarus	5	0.8747
FRA	France	5	1.3195
BEL	Belgium	5	1.4101
GBR	United Kingdom	5	1.4366

Country Code	Country Name	Industries	ECI
SWE	Sweden	5	1.6567
SGP	Singapore	5	1.8842
KOR	South Korea	5	1.9009
MUS	Mauritius	4	-0.4536
DOM	Dominican Republic	4	-0.2429
HRV	Croatia	4	0.7557
STP	São Tomé and Príncipe	4	1.0217
MYS	Malaysia	4	1.0920
PRK	North Korea	4	1.1581
AUS	Australia	3	0.0577
CRI	Costa Rica	3	0.3591
BRB	Barbados	3	0.4854
CYP	Cyprus	3	0.5454
MLT	Malta	3	0.6673
SRB	Serbia	3	0.7152
USA	United States of America	3	1.6362
TON	Tonga	2	-1.3434

SUR	Suriname	2	-1.1481
AFG	Afghanistan	2	-1.0199
BDI	Burundi	2	-0.8495
ANS	Undeclared countries	1	-1.0743
CUB	Cuba	1	-0.6681
IDN	Indonesia	1	-0.0155
ISL	Iceland	1	0.2171
FIN	Finland	1	1.5464

**Table C.8. Exporting Countries of Any of Dominican Republic's Top Manufacturing Exports, for 2019 and 2007 (Dominican Republic ECI = -0.2429)**

Country Code	Country Name	Industries	ECI
Concurrent 2019 List			
BGD	Bangladesh	9	-1.2951
ESH	Western Sahara	9	1.3905
MEX	Mexico	8	1.1481
HTI	Haiti	7	-1.1798
LSO	Lesotho	7	-0.9237
IRL	Ireland	7	1.2039
HUN	Hungary	7	1.4130
CZE	Czech Republic	7	1.7240
HND	Honduras	6	-0.7047
PAK	Pakistan	6	-0.5985
ROU	Romania	6	0.9451
CHN	China	6	1.0370
POL	Poland	6	1.1230
NLD	Netherlands	6	1.2187
SVN	Slovenia	6	1.5102
AUT	Austria	6	1.6106
DEU	Germany	6	1.9564
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.2620
KHM	Cambodia	5	-1.0383
ALB	Albania	5	-0.6992
SLV	El Salvador	5	-0.2363
TUN	Tunisia	5	-0.0201
IRN	Iran	5	0.0128
ISR	Israel	5	1.2494
ERI	Eritrea	4	-1.4056
NIC	Nicaragua	4	-1.1868
ARE	United Arab Emirates	4	0.2803
TUR	Turkey	4	0.4328
MYS	Malaysia	4	1.0920
ITA	Italy	4	1.1546
FRA	France	4	1.3195

GIN	Guinea	3	-1.8241
BFA	Burkina Faso	3	-1.0650
MLI	Mali	3	-0.8674
GUY	Guyana	3	-0.5919
MUS	Mauritius	3	-0.4536
CRI	Costa Rica	3	0.3591
IND	India	3	0.4834
CAN	Canada	3	1.0867

Country Code	Country Name	Industries	ECI
USA	United States of America	3	1.6362
SUR	Suriname	2	-1.1481
AFG	Afghanistan	2	-1.0199
BDI	Burundi	2	-0.8495
NER	Niger	2	-0.6415
NPL	Nepal	2	-0.4896
LBN	Lebanon	2	-0.1268
ARG	Argentina	2	0.1512
QAT	Qatar	2	0.1604
BGR	Bulgaria	2	0.5364
SRB	Serbia	2	0.7152
FIN	Finland	2	1.5464
SOM	Somalia	1	-1.4230
ETH	Ethiopia	1	-1.1617
BOL	Bolivia	1	-0.7446
CUB	Cuba	1	-0.6681
GTM	Guatemala	1	-0.2747
BHR	Bahrain	1	0.2902
RUS	Russian Federation	1	0.7816
<b>Lagged 2007 List</b>			
BGD	Bangladesh	9	-1.2951
LSO	Lesotho	8	-0.9237
MEX	Mexico	8	1.1481
TWN	Taiwan	8	1.8668

HTI	Haiti	7	-1.1798
KHM	Cambodia	7	-1.0383
IRL	Ireland	7	1.2039
HUN	Hungary	7	1.4130
CZE	Czech Republic	7	1.7240
HND	Honduras	6	-0.7047
PAK	Pakistan	6	-0.5985
JOR	Jordan	6	-0.1241
ROU	Romania	6	0.9451
HKG	Hong Kong	6	1.0334
POL	Poland	6	1.1230
NLD	Netherlands	6	1.2187
SVN	Slovenia	6	1.5102
DEU	Germany	6	1.9564
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.2620
NIC	Nicaragua	5	-1.1868
UZB	Uzbekistan	5	-0.6123
SLV	El Salvador	5	-0.2363

Country Code	Country Name	Industries	ECI
TUN	Tunisia	5	-0.0201
ARE	United Arab Emirates	5	0.2803
TUR	Turkey	5	0.4328
BLR	Belarus	5	0.8747
DNK	Denmark	5	1.0702
ISR	Israel	5	1.2494
LKA	Sri Lanka	4	-0.6790
MUS	Mauritius	4	-0.4536
GUM	Guam	4	0.3526
STP	São Tomé and Príncipe	4	1.0217
MYS	Malaysia	4	1.0920
ITA	Italy	4	1.1546
PRK	North Korea	4	1.1581
FRA	France	4	1.3195
BEL	Belgium	4	1.4101



MLI	Mali	3	-0.8674
GUY	Guyana	3	-0.5919
CRI	Costa Rica	3	0.3591
IND	India	3	0.4834
CYP	Cyprus	3	0.5454
MLT	Malta	3	0.6673
LVA	LaTVia	3	0.8436
USA	United States of America	3	1.6362
MDG	Madagascar	2	-1.3872
TON	Tonga	2	-1.3434
TZA	Tanzania	2	-1.1710
SUR	Suriname	2	-1.1481
AFG	Afghanistan	2	-1.0199
BDI	Burundi	2	-0.8495
MNG	Mongolia	2	-0.7642
NPL	Nepal	2	-0.4896
ARM	Armenia	2	-0.3205
LBN	Lebanon	2	-0.1268
BGR	Bulgaria	2	0.5364
FIN	Finland	2	1.5464
PNG	Papua New Guinea	1	-1.8496
SOM	Somalia	1	-1.4230
ANS	Undeclared countries	1	-1.0743
BOL	Bolivia	1	-0.7446
CUB	Cuba	1	-0.6681
SYR	Syrian Arab Republic	1	-0.4591
PER	Peru	1	-0.4412
GTM	Guatemala	1	-0.2747

**Table C.9. Exporting Countries of Any of Panama's Top Manufacturing Exports, for 2019 and 2007 (Panama ECI = -0.1420)**

Country Code	Country Name	Industries	ECI
<b>Concurrent 2019 List</b>			
VNM	Vietnam	9	-0.107
LSO	Lesotho	8	-0.924
MEX	Mexico	8	1.1481
ESH	Western Sahara	8	1.3905
KHM	Cambodia	7	-1.038
IRL	Ireland	7	1.2039
SVK	Slovakia	7	1.349
LBR	Liberia	6	-0.578
JOR	Jordan	6	-0.124
ROU	Romania	6	0.9451
HKG	Hong Kong	6	1.0334
CHN	China	6	1.037
HUN	Hungary	6	1.413
CZE	Czech Republic	6	1.724
KOR	South Korea	6	1.9009
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.262
ALB	Albania	5	-0.699
UZB	Uzbekistan	5	-0.612
TUN	Tunisia	5	-0.02
IRN	Iran	5	0.0128
ARE	United Arab Emirates	5	0.2803
PHL	Philippines	5	0.5351
THA	Thailand	5	0.8947
SAU	Saudi Arabia	5	0.9719
POL	Poland	5	1.123
FRA	France	5	1.3195
SVN	Slovenia	5	1.5102
DEU	Germany	5	1.9564
LKA	Sri Lanka	4	-0.679
PRT	Portugal	4	0.3593
BIH	Bosnia and Herzegovina	4	0.5203

CAN	Canada	4	1.0867
MYS	Malaysia	4	1.092
ITA	Italy	4	1.1546
NLD	Netherlands	4	1.2187
BEL	Belgium	4	1.4101
USA	United States of America	4	1.6362
SWE	Sweden	4	1.6567
MMR	Myanmar	3	-1.101
ZWE	Zimbabwe	3	-0.845

Country Code	Country Name	Industries	ECI
NAM	Namibia	3	-0.483
ARG	Argentina	3	0.1512
CRI	Costa Rica	3	0.3591
IND	India	3	0.4834
CYP	Cyprus	3	0.5454
SRB	Serbia	3	0.7152
LTU	Lithuania	3	0.8264
EST	Estonia	3	0.9658
GBR	United Kingdom	3	1.4366
SGP	Singapore	3	1.8842
YEM	Yemen	2	-1.389
GAB	Gabon	2	-1.119
CIV	Côte d'Ivoire	2	-0.941
COG	Congo	2	-0.743
QAT	Qatar	2	0.1604
KWT	Kuwait	2	0.3718
LVA	LaTVia	2	0.8436
COD	Congo (Democratic Republic of the)	1	-1.429
CMR	Cameroon	1	-1.33
ANS	Undeclared countries	1	-1.074
CUB	Cuba	1	-0.668
IDN	Indonesia	1	-0.015
RUS	Russian Federation	1	0.7816

Lagged 2007 List			
VNM	Vietnam	9	-0.1072
MEX	Mexico	8	1.1481
KHM	Cambodia	7	-1.0383
IRL	Ireland	7	1.2039
HUN	Hungary	7	1.4130
LBR	Liberia	6	-0.5777
JOR	Jordan	6	-0.1241
BHS	Bahamas	6	0.5497
ROU	Romania	6	0.9451
CHN	China	6	1.0370
FRA	France	6	1.3195
CZE	Czech Republic	6	1.7240
KOR	South Korea	6	1.9009
CHE	Switzerland	6	2.0474
JPN	Japan	6	2.2620
ALB	Albania	5	-0.6992
UZB	Uzbekistan	5	-0.6123
ARE	United Arab Emirates	5	0.2803
GUM	Guam	5	0.3526
TUR	Turkey	5	0.4328
BLR	Belarus	5	0.8747

Country Code	Country Name	Industries	ECI
POL	Poland	5	1.1230
PRK	North Korea	5	1.1581
NLD	Netherlands	5	1.2187
ISR	Israel	5	1.2494
SVN	Slovenia	5	1.5102
AUT	Austria	5	1.6106
DEU	Germany	5	1.9564
LAO	Laos	4	-0.8438
VCT	Saint Vincent and the Grenadines	4	-0.6938
COM	Comoros	4	-0.2774
PRT	Portugal	4	0.3593
MLT	Malta	4	0.6673

ESP	Spain	4	0.7422
STP	São Tomé and Príncipe	4	1.0217
MYS	Malaysia	4	1.0920
ITA	Italy	4	1.1546
BEL	Belgium	4	1.4101
SWE	Sweden	4	1.6567
SGP	Singapore	4	1.8842
NAM	Namibia	3	-0.4832
ARM	Armenia	3	-0.3205
GEO	Georgia	3	-0.0585
ARG	Argentina	3	0.1512
CRI	Costa Rica	3	0.3591
IND	India	3	0.4834
CYP	Cyprus	3	0.5454
SRB	Serbia	3	0.7152
HRV	Croatia	3	0.7557
GBR	United Kingdom	3	1.4366
TON	Tonga	2	-1.3434
SUR	Suriname	2	-1.1481
AFG	Afghanistan	2	-1.0199
UGA	Uganda	2	-0.8289
COG	Congo	2	-0.7426
MDA	Moldova	2	-0.1924
AUS	Australia	2	0.0577
FIN	Finland	2	1.5464
SOM	Somalia	1	-1.4230
ANS	Undeclared countries	1	-1.0743
AGO	Angola	1	-0.8989
CUB	Cuba	1	-0.6681
SYR	Syrian Arab Republic	1	-0.4591
IDN	Indonesia	1	-0.0155
COL	Colombia	1	0.2091
KWT	Kuwait	1	0.3718

**Table C. 10. Top 20 Potential Export Industries for Costa Rica Identified through Lagged and Concurrent Analysis: Method 3**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
29	293379	Lactams, n.e.s.	1			1.9298	0.0004	1.5707
87	870840	Transmissions for motor vehicles	2	Transmissions for motor vehicles	2	1.5444	0.0021	1.1853
84	847191	Digital computer CPU, some storage/input/output	3	Digital computer CPU, some storage/input/output	3	1.3658	0.0176	1.0067
30	300439	Hormones, not contraceptive, doses	2	Hormones, not contraceptive, doses	2	1.2183	0.1502	0.8592
85	854211	Monolithic integrated circuits, digital	10	Monolithic integrated circuits, digital	11	1.1696	0.1068	0.8105
85	851790	Parts of telephone line equipment	2	Parts of telephone line equipment	2	1.0956	0.1031	0.7365
84	847330	Parts of data processing equipment	6	Parts of data processing equipment	6	1.0757	0.1538	0.7166
87	870190			Wheeled tractors n.e.s.	2	1.0021	0.0405	0.6430
87	870829			Parts of motor vehicle bodies	2	1.0007	0.0115	0.6416
84	841191			Turbo-jet, -propeller engine, parts	3	0.9346	0.0005	0.5755
87	870899	Motor vehicle parts n.e.s.	3	Motor vehicle parts n.e.s.	3	0.7992	0.3285	0.4401

84	841112			Turbo-jet engine, >25 KN	2	0.7913	0.0263	0.4322
88	880330	Aircraft parts n.e.s.	2	Aircraft parts n.e.s.	2	0.7720	0.0537	0.4129
85	852520	Transmit-receive apparatus for radio, TV	11	Transmit-receive apparatus for radio, TV	7	0.6469	0.0165	0.2878
30	300220	Vaccines, human	2	Vaccines, human	2	0.6229	0.0027	0.2638
87	870321	Automobiles, spark ignition, <1000cc	3	Automobiles, spark ignition, <1000cc	4	0.6051	0.0018	0.2460
40	401110	Rubber tires, cars, new	2	Rubber tires, cars, new	2	0.5660	3.4021	0.2069
30	300490	Medicaments, doses, n.e.s.	17	Medicaments, doses, n.e.s.	18	0.4785	0.4894	0.1194
85	852990			Parts for radio/TV transmit/receive equipment	2	0.3747	0.0759	0.0156
95	950390	Toys n.e.s.	2	Toys n.e.s.	2	0.2169	0.0255	-0.1422

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
85	852810	Color TV receivers/monitors/projectors	3			-0.1188	0.0511	-0.4779
31	310210	Urea, >10kg	2			-0.9008	0.0581	-1.2599
85	854430	Ignition sets for vehicles/aircraft/ship	5	Ignition sets for vehicles/aircraft/ship	3	-1.1410	0.1243	-1.5001

62	620342	Men's trousers & shorts, cotton, not knit	4			-1.7457	0.0441	-2.1048
61	610910	T-shirts, of cotton, knit	3			-1.9099	0.0194	-2.2690



**Table C.11. Top 20 Potential Export Industries for Dominican Republic Identified through Lagged and Concurrent Analysis: Method 3**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
87	870840	Transmissions for motor vehicles	2	Transmissions for motor vehicles	2	1.5444	0.0024	1.7873
84	847191	Digital computer CPU, some storage/input/output	2	Digital computer CPU, some storage/input/output	3	1.3658	0.0009	1.6087
85	854211	Monolithic integrated circuits, digital	6	Monolithic integrated circuits, digital	8	1.1696	0.0020	1.4125
84	847330	Parts of data processing equipment	3	Parts of data processing equipment	4	1.0757	0.0044	1.3186
87	870190			Wheeled tractors n.e.s.	2	1.0021	0.0000	1.2450
87	870829	Parts of motor vehicle bodies	2	Parts of motor vehicle bodies	2	1.0007	0.0446	1.2436
84	841191			Turbo-jet, -propeller engine, parts	3	0.9346	0.0008	1.1775
29	293359	Heterocyclic compounds, pyrimidine ring	2	Heterocyclic compounds, pyrimidine ring	2	0.9082	0.0000	1.1511
87	870899	Motor vehicle parts n.e.s.	2	Motor vehicle parts n.e.s.	2	0.7992	0.2074	1.0421

85	852520	Transmit-receive apparatus for radio, TV	7	Transmit-receive apparatus for radio, TV	9	0.6469	0.0679	0.8898
30	300490	Medicaments, doses, n.e.s.	13	Medicaments, doses, n.e.s.	17	0.4785	0.1696	0.7214
95	950390	Toys n.e.s.	2		2	0.2169	0.1046	0.4598
85	852810	Color TV receivers/monitors/projectors	3	Color TV receivers/monitors/projectors	3	-0.1188	0.0169	0.1241
85	854430	Ignition sets for vehicles/aircraft/ship	5	Ignition sets for vehicles/aircraft/ship	4	-1.1410	0.0684	-0.8981
62	620342	Men's trousers & shorts, cotton, not knit	6	Men's trousers & shorts, cotton, not knit	6	-1.7457	0.5632	-1.5028
62	620520	Men's shirts, cotton, not knit	3		3	-1.7751	0.9954	-1.5322
61	610990	T-shirts, of material n.e.s., knit	6	T-shirts, of material n.e.s., knit	6	-1.8570	3.2058	-1.6141
61	610910	T-shirts, of cotton, knit	5	T-shirts, of cotton, knit	7	-1.9099	17.7484	-1.6670

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
61	611020	Pullovers, cardigans, of cotton, knit	7	Pullovers, cardigans, of cotton, knit	7	-1.9164	3.6443	-1.6735
62	620462	Women's trousers & shorts, cotton, not knit	4	Women's trousers & shorts, cotton, not knit	4	-1.9493	0.2244	-1.7064

61	611030	Pullovers, cardigans, of manmade fibers, knit	6	Pullovers, cardigans, of manmade fibers, knit	7	-1.9692	1.8708	-1.7263
52	520100	Cotton, not carded/combed	3	Cotton, not carded/combed	3	-2.4363	0.0000	-2.1934

**Table C.12. Top 20 Potential Export Industries for Panama Identified through Lagged and Concurrent Analysis: Method 3**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
84	847191	Digital computer CPU, some storage/input/output	2	Digital computer CPU, some storage/input/output	2	1.3658	0.1121	1.5078
85	854211	Monolithic integrated circuits, digital	11	Monolithic integrated circuits, digital	9	1.1696	0.0040	1.3116
85	851790	Parts of telephone line equipment	4	Parts of telephone line equipment	3	1.0956	0.8073	1.2376
84	847330	Parts of data processing equipment	8	Parts of data processing equipment	5	1.0757	0.1444	1.2177
87	870190			Wheeled tractors n.e.s.	2	1.0021	0.0143	1.1441
87	870829	Parts of motor vehicle bodies	2	Parts of motor vehicle bodies	2	1.0007	0.0152	1.1427
84	841191			Turbo-jet, -propeller engine, parts	3	0.9346	0.0016	1.0766

87	870899	Motor vehicle parts n.e.s.	3	Motor vehicle parts n.e.s.	3	0.7992	0.3224	0.9412
84	841112	Turbo-jet engine, >25 KN	2	Turbo-jet engine, >252 KN	2	0.7913	0.0000	0.9333
88	880330	Aircraft parts n.e.s.	2	Aircraft parts n.e.s.	2	0.7720	0.0115	0.9140
85	852520	Transmit-receive apparatus for radio, TV	14	Transmit-receive apparatus for radio, TV	8	0.6469	0.4207	0.7889
30	300220	Vaccines, human	2	Vaccines, human	2	0.6229	0.3535	0.7649
40	401110	Rubber tires, cars, new	2	Rubber tires, cars, new	2	0.5660	2.4954	0.7080
30	300490	Medicaments, doses, n.e.s.	9	Medicaments, doses, n.e.s.	15	0.4785	1.9417	0.6205
85	852990	Parts for radio/TV transmit/receive equipment	2	Parts for radio/TV transmit/receive equipment	3	0.3747	0.1143	0.5167
95	950390	Toys n.e.s.	2	Toys n.e.s.	2	0.2169	0.3715	0.3589
33	330499			Make-up, n.e.s.	2	0.1699	0.6567	0.3119
85	852810	Color TV receivers/monitors/projectors	4	Color TV receivers/monitors/projectors	4	-0.1188	0.7017	0.0232
31	310210	Urea, >10kg	2			-0.9008	0.0000	-0.7588
64	640399	Footwear, uppers of leather, n.e.s.	3	Footwear, uppers of leather, n.e.s.	2	-0.9024	0.6555	-0.7604
85	854430	Ignition sets for vehicles/aircraft/ship	4	Ignition sets for vehicles/aircraft/ship	4	-1.1410	0.0088	-0.9990
64	640610	Footwear uppers	2			-1.3223	0.0003	-1.1803
61	611030	Pullovers, cardigans, of manmade fibers, knit	3			-1.9692	0.1537	-1.8272

**Table D.1 Potential Export Industries for Costa Rica Suggested by Closest Countries in Exports in 2019  
(Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	13	0.4785	0.4894
852520	Transmit-receive apparatus for radio, TV	6	0.6469	0.0165
854211	Monolithic integrated circuits, digital	5	1.1696	0.1068
870899	Motor vehicle parts n.e.s.	4	0.7992	0.3285
841112	Turbo-jet engine, >25 KN	4	0.7913	0.0263
847330	Parts of data processing equipment	3	1.0757	0.1538
870829	Parts of motor vehicle bodies	3	1.0007	0.0115
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0005
852810	Color TV receivers/monitors/projectors	3	-0.1188	0.0511
880330	Aircraft parts n.e.s.	2	0.772	0.0537
300220	Vaccines, human	2	0.6229	0.0027
940360	Furniture, wooden, n.e.s.	2	0.1749	0.1142
382390	Chemical products, n.e.s.	2	-0.2594	0.1571
854430	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.1243
610910	T-shirts, of cotton, knit	2	-1.9099	0.0194
293379	Lactams, n.e.s.	1	1.9298	0.0004
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0223
870840	Transmissions for motor vehicles	1	1.5444	0.0021
840734	Engines, spark-ignition, >1000cc	1	1.4839	0.0001
847191	Digital computer CPU, some storage/input/output	1	1.3658	0.0176
840820	Diesel engine, motor vehicles	1	1.3594	0.0044
848180	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0838
300439	Hormones, not contraceptive, doses	1	1.2183	0.1502
293490	Heterocyclic compounds, n.e.s.	1	1.1167	0.0263
847199	Automatic data processing machines	1	1.114	0.0276
293500	Sulfonamides	1	1.0692	0.0028
870190	Wheeled tractors n.e.s.	1	1.0021	0.0405
850440	Static converters, n.e.s.	1	0.9852	0.0958

853890	Parts of elect switches, protectors	1	0.9786	0.2917
392690	Plastic articles, n.e.s.	1	0.5935	1.9143
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.197
970110	Paintings/drawings/pastels, by hand	1	0.2592	0.0417
853620	Automatic circuit breakers, <1kV	1	0.216	0.4686
300660	Contraceptives, hormones	1	0.1917	1.1251
330499	Make-up, n.e.s.	1	0.1699	0.1069
850423	Liquid dielectric transformers >10,000KVA	1	0.1421	0.0042
851782	Telegraphic apparatus, n.e.s.	1	0.0579	0.0036

Industry Code	Industry Name	Paths	PCI	RCA
940600	Prefabricated buildings	1	-0.1161	0.0934
940190	Parts of seats	1	-0.1799	0.0422
330210	Mixed odors, food & drink	1	-0.209	2.6304
701090	Glass containers for packing goods	1	-0.471	8.4828
283620	Disodium carbonate	1	-0.5831	0
690790	Unglazed ceramic tiles, >7cm wide	1	-0.6254	0.1309
890590	Floating docks, special function vessels	1	-0.9301	0.0192
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.0423
521213	Cotton fabric, <200g/m2, dye, n.e.s.	1	-1.1418	0

**Table D.2. Potential Export Industries for Costa Rica Suggested by Closest Countries in Exports in 2007  
(Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	11	0.4785	0.4894
854211	Monolithic integrated circuits, digital	4	1.1696	0.1068
847330	Parts of data processing equipment	4	1.0757	0.1538
852520	Transmit-receive apparatus for radio, TV	4	0.6469	0.0165
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0005
841112	Turbo-jet engine, >25 KN	3	0.7913	0.0263
880330	Aircraft parts n.e.s.	3	0.772	0.0537
300439	Hormones, not contraceptive, doses	2	1.2183	0.1502
940600	Prefabricated buildings	2	-0.1161	0.0934
382390	Chemical products, n.e.s.	2	-0.2594	0.1571
690790	Unglazed ceramic tiles, >7cm wide	2	-0.6254	0.1309
890590	Floating docks, special function vessels	2	-0.9301	0.0192
890190	Cargo vessels, not tanker or refrigerated	2	-1.2249	3.1087
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0223
870840	Transmissions for motor vehicles	1	1.5444	0.0021
840734	Engines, spark-ignition, >1000cc	1	1.4839	0.0001
840820	Diesel engine, motor vehicles	1	1.3594	0.0044
848180	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0838
851790	Parts of telephone line equipment	1	1.0956	0.1031
350790	Enzymes, n.e.s.	1	1.0609	0.2949
851150	Generators & alternators	1	1.0562	0.0108
870829	Parts of motor vehicle bodies	1	1.0007	0.0115
850440	Static converters, n.e.s.	1	0.9852	0.0958
850230	Electric generating sets, n.e.s.	1	0.9209	0.0043
870899	Motor vehicle parts n.e.s.	1	0.7992	0.3285
853120	Indicator panels, with electronic displays	1	0.6401	0.0266
300220	Vaccines, human	1	0.6229	0.0027
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.197
401110	Rubber tires, cars, new	1	0.566	3.4021

841290	Hydraulic/pneumatic power engine, parts	1	0.4393	0.1469
300431	Insulin, doses	1	0.379	0
853340	Variable resistors, rheostats & potentiometers	1	0.372	11.6694
850220	Generating sets, spark ignition engines	1	0.325	0.0116
970110	Paintings/drawings/pastels, by hand	1	0.2592	0.0417
853620	Automatic circuit breakers, <1kV	1	0.216	0.4686
940360	Furniture, wooden, n.e.s.	1	0.1749	0.1142
330499	Make-up, n.e.s.	1	0.1699	0.1069

Industry Code	Industry Name	Paths	PCI	RCA
293791	Insulin	1	0.164	0
300420	Antibiotics, doses, n.e.s.	1	-0.0255	0.8996
852810	Color TV receivers/monitors/projectors	1	-0.1188	0.0511
940490	Articles of bedding n.e.s.	1	-0.314	0.0859
871120	Motorcycles, 50-250cc engine	1	-0.4021	0.0199
961700	Vacuum flasks	1	-0.4243	0.0031
890600	Warships, lifeboats	1	-0.4669	0
640411	Sports footwear, upper textile	1	-0.7864	0.001
392490	Plastic household articles, n.e.s.	1	-0.8052	0.2653
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	0.016
521213	Cotton fabric, <200g/m2, dye, n.e.s.	1	-1.1418	0
290511	Methyl alcohol	1	-1.2183	0.0007
330129	Oils, n.e.s.	1	-1.4875	0.3272
890800	Scrapping vessels	1	-1.7744	0.162
610910	T-shirts, of cotton, knit	1	-1.9099	0.0194
520100	Cotton, not carded/combed	1	-2.4363	0.0172



**Table D.3. Potential Export Industries for Dominican Republic Suggested by Closest Countries in Exports in 2019 (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	9	0.4785	0.1696
852520	Transmit-receive apparatus for radio, TV	4	0.6469	0.0679
854211	Monolithic integrated circuits, digital	3	1.1696	0.002
847330	Parts of data processing equipment	3	1.0757	0.0044
870899	Motor vehicle parts n.e.s.	3	0.7992	0.2074
382390	Chemical products, n.e.s.	3	-0.2594	0.4222
870829	Parts of motor vehicle bodies	2	1.0007	0.0446
852810	Color TV receivers/monitors/projectors	2	-0.1188	0.0169
854430	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.0684
520100	Cotton, not carded/combed	2	-2.4363	0
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0003
870840	Transmissions for motor vehicles	1	1.5444	0.0024
840820	Diesel engine, motor vehicles	1	1.3594	0.0145
848180	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0653
300439	Hormones, not contraceptive, doses	1	1.2183	0.0248
847199	Automatic data processing machines	1	1.114	0.2385
851150	Generators & alternators	1	1.0562	0.0073
870190	Wheeled tractors n.e.s.	1	1.0021	0
850440	Static converters, n.e.s.	1	0.9852	0.0788
853890	Parts of elect switches, protectors	1	0.9786	0.77
841191	Turbo-jet, -propeller engine, parts	1	0.9346	0.0008
880330	Aircraft parts n.e.s.	1	0.772	0.0012
853120	Indicator panels, with electronic displays	1	0.6401	0.3978
870210	Diesel powered buses	1	0.5994	0.0024
853710	Electrical control & distribution boards, <1kV	1	0.5934	0.0698
401110	Rubber tires, cars, new	1	0.566	0.0102
852990	Parts for radio/TV transmit/receive equipment	1	0.3747	0.0162
850220	Generating sets, spark ignition engines	1	0.325	0.0061
300660	Contraceptives, hormones	1	0.1917	0

940360	Furniture, wooden, n.e.s.	1	0.1749	0.283
690220	Refractory bricks, >50% alumina, silica	1	0.1513	0.002
870590	Special purpose motor vehicles n.e.s.	1	-0.1478	0.022
940190	Parts of seats	1	-0.1799	0.0041
871120	Motorcycles, 50-250cc engine	1	-0.4021	0.004
961700	Vacuum flasks	1	-0.4243	0.0163
890600	Warships, lifeboats	1	-0.4669	0
701090	Glass containers for packing goods	1	-0.471	0.0121

Industry Code	Industry Name	Paths	PCI	RCA
280920	Phosphoric acid	1	-0.4714	0.0153
283620	Disodium carbonate	1	-0.5831	0.0044
854420	Coaxial cable	1	-0.6149	0.0597
690790	Unglazed ceramic tiles, >7cm wide	1	-0.6254	0.0333
850211	Generating sets, diesel, <75kVA	1	-0.737	0.9827
640411	Sports footwear, upper textile	1	-0.7864	0.937
310210	Urea, >10kg	1	-0.9008	0.1757
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	2.2519
310310	Superphosphates, >10kg	1	-0.9664	1.0083
570242	Carpets, manmade yarn, woven pile, madeup	1	-1.0522	0
710210	Diamonds, unsorted	1	-1.5438	0.3614
620342	Men's trousers & shorts, cotton, not knit	1	-1.7457	0.5632
890800	Scrapping vessels	1	-1.7744	0
400122	Technically specified natural rubber	1	-2.6521	0

**Table D.4. Potential Export Industries for Dominican Republic Suggested by Closest Countries in Exports in 2007 (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Paths	PCI	RCA
300490	Medicaments, doses, n.e.s.	9	0.4785	0.1696
852520	Transmit-receive apparatus for radio, TV	3	0.6469	0.0679
382390	Chemical products, n.e.s.	3	-0.2594	0.4222
847330	Parts of data processing equipment	2	1.0757	0.0044
870829	Parts of motor vehicle bodies	2	1.0007	0.0446
841191	Turbo-jet, -propeller engine, parts	2	0.9346	0.0008
870899	Motor vehicle parts n.e.s.	2	0.7992	0.2074
880330	Aircraft parts n.e.s.	2	0.772	0.0012
853710	Electrical control & distribution boards, <1kV	2	0.5934	0.0698
701090	Glass containers for packing goods	2	-0.471	0.0121
690790	Unglazed ceramic tiles, >7cm wide	2	-0.6254	0.0333
854430	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.0684
870840	Transmissions for motor vehicles	1	1.5444	0.0024
840820	Diesel engine, motor vehicles	1	1.3594	0.0145
848180	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0653
300439	Hormones, not contraceptive, doses	1	1.2183	0.0248
854211	Monolithic integrated circuits, digital	1	1.1696	0.002
842952	Shovels & excavators, revolving superstructure	1	1.1304	0.0013
851150	Generators & alternators	1	1.0562	0.0073
853890	Parts of elect switches, protectors	1	0.9786	0.77
870423	Diesel powered trucks, >20 tonnes	1	0.8357	0
293628	Vitamin E	1	0.7667	0
390410	Polyvinyl chloride	1	0.7215	0.0043
851140	Starter motors	1	0.6602	0.0473
853120	Indicator panels, with electronic displays	1	0.6401	0.3978
870210	Diesel powered buses	1	0.5994	0.0024
401110	Rubber tires, cars, new	1	0.566	0.0102
850220	Generating sets, spark ignition engines	1	0.325	0.0061
970110	Paintings/drawings/pastels, by hand	1	0.2592	0.0211

940360	Furniture, wooden, n.e.s.	1	0.1749	0.283
280700	Sulfuric acid, oleum	1	0.0804	0.0033
847490	Parts for mineral sort, screen machines	1	-0.0638	0.1113
380820	Fungicides	1	-0.0962	0.1956
940600	Prefabricated buildings	1	-0.1161	0.004
852810	Color TV receivers/monitors/projectors	1	-0.1188	0.0169
940190	Parts of seats	1	-0.1799	0.0041
860900	Cargo containers, for carriage	1	-0.3567	0.0465

Industry Code	Industry Name	Paths	PCI	RCA
961700	Vacuum flasks	1	-0.4243	0.0163
280920	Phosphoric acid	1	-0.4714	0.0153
283620	Disodium carbonate	1	-0.5831	0.0044
282751	Bromides of sodium, potassium	1	-0.61	0
841121	Turbo-propeller engine, <1100 kW	1	-0.711	0
871631	Tanker trailers and semi-trailers	1	-0.7143	0
850211	Generating sets, diesel, <75kVA	1	-0.737	0.9827
843143	Parts of boring/sinking machinery	1	-0.773	0.0144
847439	Mixing, kneading machines for minerals	1	-0.8187	0.0288
340111	Soaps for toilet, solid	1	-0.9223	1.7675
310310	Superphosphates, >10kg	1	-0.9664	1.0083
870410	Dump trucks, for off-highway use	1	-0.9678	0
570242	Carpets, manmade yarn, woven pile, madeup	1	-1.0522	0
611010	Pullovers, cardigans, of wool/hair, knit	1	-1.3227	0.007
842959	Earth moving/road making equip, self-propelled	1	-1.3341	0.0788
620342	Men's trousers & shorts, cotton, not knit	1	-1.7457	0.5632
890800	Scrapping vessels	1	-1.7744	0
620520	Men's shirts, cotton, not knit	1	-1.7751	0.9954
610510	Men's shirts, cotton, knit	1	-1.8315	0.2618
620462	Women's trousers & shorts, cotton, not knit	1	-1.9493	0.2244
611120	Babies garments, of cotton, knit	1	-2.1347	0.0058
520100	Cotton, not carded/combed	1	-2.4363	0

**Table D.5. Potential Export Industries for Panama Suggested by Closest Countries in Exports in 2019  
(Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
852520	Transmit-receive apparatus for radio, TV	4	0.6469	0.4207
520100	Cotton, not carded/combed	4	-2.4363	0
854211	Monolithic integrated circuits, digital	3	1.1696	0.004
847330	Parts of data processing equipment	3	1.0757	0.1444
310210	Urea, >10kg	3	-0.9008	0
290511	Methyl alcohol	3	-1.2183	0
901020	Equipment for photographic laboratories n.e.s.	2	1.7947	0.0001
847193	Computer data storage units	2	0.9144	0.6094
841112	Turbo-jet engine, >25 KN	2	0.7913	0
300431	Insulin, doses	2	0.379	1.625
940360	Furniture, wooden, n.e.s.	2	0.1749	0.0809
871000	Tanks, armored fighting vehicles	2	-0.1489	0.2475
382390	Chemical products, n.e.s.	2	-0.2594	0.1503
391190	Polysulfides, -sulfones, n.e.s.	1	1.4205	0.0175
382200	Diagnostic reagents, n.e.s.	1	1.3443	0.0474
300439	Hormones, not contraceptive, doses	1	1.2183	0.1384
851790	Parts of telephone line equipment	1	1.0956	0.8073
350790	Enzymes, n.e.s.	1	1.0609	0.071
870829	Parts of motor vehicle bodies	1	1.0007	0.0152
840690	Steam turbines, parts	1	0.9937	0.0005
850230	Electric generating sets, n.e.s.	1	0.9209	0.0301
290250	Styrene	1	0.8353	0.0108
870899	Motor vehicle parts n.e.s.	1	0.7992	0.3224
880330	Aircraft parts n.e.s.	1	0.772	0.0115
843149	Parts of cranes, work-trucks, constr machine	1	0.6438	0.1968
290531	Ethenediol	1	0.5826	0
841290	Hydraulic/pneumatic power engine, parts	1	0.4393	0.3867
940390	Furniture parts	1	0.3738	0.0188
950390	Toys n.e.s.	1	0.2169	0.3715
330499	Make-up, n.e.s.	1	0.1699	0.6567

940161	Upholstered seats with wooden frames	1	0.1659	0.0068
854460	Electric conductors, >1,000V	1	0.1539	0.4988
690220	Refractory bricks, >50% alumina, silica	1	0.1513	0.0062
850423	Liquid dielectric transformers >10,000KVA	1	0.1421	0.0171
854449	Electric conductors, <80V, no connectors	1	-0.5173	0.3577
283699	Carbonates of metals, n.e.s.	1	-0.5591	0
640391	Boots, upper of leather, n.e.s.	1	-0.9846	0.3506
854430	Ignition sets for vehicles/aircraft/ship	1	-1.141	0.0088
621010	Garments, of textile felts & nonwoven fabric	1	-1.1794	0.2065

**Table D.6. Potential Export Industries for Panama Suggested by Closest Countries in Exports in 2007  
(Panama ECI = -0.1420)**

Industry Code	Industry Name	Paths	PCI	RCA
852520	Transmit-receive apparatus for radio, TV	5	0.6469	0.4207
300490	Medicaments, doses, n.e.s.	5	0.4785	1.9417
854211	Monolithic integrated circuits, digital	4	1.1696	0.004
847330	Parts of data processing equipment	4	1.0757	0.1444
841191	Turbo-jet, -propeller engine, parts	3	0.9346	0.0016
841112	Turbo-jet engine, >25 KN	3	0.7913	0
880330	Aircraft parts n.e.s.	3	0.772	0.0115
840820	Diesel engine, motor vehicles	2	1.3594	0.004
870829	Parts of motor vehicle bodies	2	1.0007	0.0152
847193	Computer data storage units	2	0.9144	0.6094
330499	Make-up, n.e.s.	2	0.1699	0.6567
382390	Chemical products, n.e.s.	2	-0.2594	0.1503
520100	Cotton, not carded/combed	2	-2.4363	0
901020	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0001
848180	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0851
300439	Hormones, not contraceptive, doses	1	1.2183	0.1384
851150	Generators & alternators	1	1.0562	0.3346
293390	Heterocyclic compounds, N-hetero-atoms	1	0.9943	0.0031
870899	Motor vehicle parts n.e.s.	1	0.7992	0.3224
910121	Wrist-watch, precious metal, automatic wound	1	0.7554	0.1582
853120	Indicator panels, with electronic displays	1	0.6401	0.0429
300220	Vaccines, human	1	0.6229	0.3535
401110	Rubber tires, cars, new	1	0.566	2.4954
300431	Insulin, doses	1	0.379	1.625
850220	Generating sets, spark ignition engines	1	0.325	0.1873
970110	Paintings/drawings/pastels, by hand	1	0.2592	0.0421
950390	Toys n.e.s.	1	0.2169	0.3715
940360	Furniture, wooden, n.e.s.	1	0.1749	0.0809
854460	Electric conductors, >1,000V	1	0.1539	0.4988
940600	Prefabricated buildings	1	-0.1161	0.0782

852810	Color TV receivers/monitors/projectors	1	-0.1188	0.7017
910221	Wrist-watch, base-metal case, automatic wound	1	-0.1499	0.079
871120	Motorcycles, 50-250cc engine	1	-0.4021	0.4729
961700	Vacuum flasks	1	-0.4243	0.3575
690790	Unglazed ceramic tiles, >7cm wide	1	-0.6254	0.0243
640411	Sports footwear, upper textile	1	-0.7864	4.5292
640399	Footwear, uppers of leather, n.e.s.	1	-0.9024	0.6555
310420	Potassium chloride, >10kg	1	-0.9072	0.0022
330129	Oils, n.e.s.	1	-1.4875	0.1225



**Table D.7. Closest Countries to Costa Rica's Exports in 2019 and 2007 (Costa Rica ECI = 0.3591)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
DOM	Dominican Republic	0.1131	-0.2429
USA	United States of America	0.1258	1.6362
NLD	Netherlands	0.126	1.2187
IRL	Ireland	0.1283	1.2039
BEL	Belgium	0.1298	1.4101
BGR	Bulgaria	0.1303	0.5364
DEU	Germany	0.1304	1.9564
AUT	Austria	0.1306	1.6106
ITA	Italy	0.1311	1.1546
MEX	Mexico	0.1311	1.1481
FIN	Finland	0.1316	1.5464
GBR	United Kingdom	0.1321	1.4366
POL	Poland	0.1323	1.1230
IND	India	0.1329	0.4834
FRA	France	0.1329	1.3195
HRV	Croatia	0.1331	0.7557
LVA	LaTVia	0.1331	0.8436
<b>Lagged 2007 List</b>			
DOM	Dominican Republic	0.1119	-0.2429
CYP	Cyprus	0.1237	0.5454
USA	United States of America	0.1252	1.6362
NLD	Netherlands	0.1276	1.2187
AUS	Australia	0.1278	0.0577
GBR	United Kingdom	0.1282	1.4366
DEU	Germany	0.129	1.9564
ITA	Italy	0.1294	1.1546
AUT	Austria	0.1294	1.6106
FRA	France	0.1296	1.3195

IDN	Indonesia	0.1298	-0.0155
LVA	LaTVia	0.1302	0.8436
BEL	Belgium	0.1307	1.4101
COM	Comoros	0.1308	-0.2774
DNK	Denmark	0.131	1.0702
GHA	Ghana	0.1312	-1.0676
EST	Estonia	0.1312	0.9658

**Table D.8. Closest Countries to Dominican Republic's Exports in 2019 (Dominican Republic ECI = -0.2429)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
COM	Comoros	0.0720	-0.2774
USA	United States of America	0.0725	1.6362
LBN	Lebanon	0.0731	-0.1268
NLD	Netherlands	0.0733	1.2187
BGR	Bulgaria	0.0736	0.5364
ITA	Italy	0.0737	1.1546
IDN	Indonesia	0.0742	-0.0155
AUT	Austria	0.0756	1.6106
JAM	Jamaica	0.0760	-0.4245
IND	India	0.0760	0.4834
AUS	Australia	0.0765	0.0577
FIN	Finland	0.0765	1.5464
EGY	Egypt	0.0765	-0.1643
DEU	Germany	0.0766	1.9564
CAF	Central African Republic	0.0767	-0.1742
TUR	Turkey	0.0770	0.4328
POL	Poland	0.0771	1.1230
<b>Lagged 2007 List</b>			
MNG	Mongolia	0.0773	-0.7642
DJI	Djibouti	0.0774	-1.2132
BDI	Burundi	0.0776	-0.8495
LBN	Lebanon	0.0786	-0.1268
ETH	Ethiopia	0.0796	-1.1617
AUS	Australia	0.0801	0.0577
USA	United States of America	0.0808	1.6362
ITA	Italy	0.0813	1.1546
TUR	Turkey	0.0823	0.4328
COL	Colombia	0.0825	0.2091

PER	Peru	0.0828	-0.4412
COM	Comoros	0.0832	-0.2774
ROU	Romania	0.0832	0.9451
GBR	United Kingdom	0.0834	1.4366
LVA	LaTVia	0.0836	0.8436
AUT	Austria	0.0836	1.6106
BGR	Bulgaria	0.0837	0.5364

**Table D.9. Closest Countries to Panama's Exports in 2019 (Panama ECI = -0.1420)**

Country Code	Country Name	Distance	ECI
<b>Concurrent 2019 List</b>			
OMN	Oman	0.0327	0.0087
ARE	United Arab Emirates	0.0351	0.2803
NAM	Namibia	0.0362	-0.4832
GRC	Greece	0.0372	0.1190
HKG	Hong Kong	0.0373	1.0334
LTU	Lithuania	0.0400	0.8264
AUS	Australia	0.0403	0.0577
NLD	Netherlands	0.0426	1.2187
ZWE	Zimbabwe	0.0440	-0.8451
JAM	Jamaica	0.0441	-0.4245
COD	Congo (Democratic Republic of the)	0.0443	-1.4293
DNK	Denmark	0.0445	1.0702
HRV	Croatia	0.0452	0.7557
AZE	Azerbaijan	0.0482	-0.6812
SGP	Singapore	0.0486	1.8842
BHR	Bahrain	0.0488	0.2902
KWT	Kuwait	0.0489	0.3718
<b>Lagged 2007 List</b>			
BEL	Belgium	0.0496	1.4101
GBR	United Kingdom	0.0510	1.4366
FRA	France	0.0513	1.3195
ITA	Italy	0.0523	1.1546
AUS	Australia	0.0527	0.0577
NLD	Netherlands	0.0527	1.2187
LVA	LaTVia	0.0528	0.8436
DEU	Germany	0.0530	1.9564
USA	United States of America	0.0537	1.6362
ARE	United Arab Emirates	0.0556	0.2803

IDN	Indonesia	0.0558	-0.0155
CHE	Switzerland	0.0562	2.0474
SWE	Sweden	0.0564	1.6567
COM	Comoros	0.0564	-0.2774
AUT	Austria	0.0564	1.6106
GRC	Greece	0.0568	0.1190
CAN	Canada	0.0573	1.0867

**Table D.10. Top 20 Potential Export Industries for Costa Rica Identified through Lagged and Concurrent Analysis: Method 4**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
29	293379	Lactams, n.e.s.	1			1.9298	0.0004	1.5707
90	901020	Equipment for photographic laboratories n.e.s.	1	Equipment for photographic laboratories n.e.s.	1	1.7947	0.0223	1.4356
87	870840	Transmissions for motor vehicles	1	Transmissions for motor vehicles	1	1.5444	0.0021	1.1853
84	840734	Engines, spark-ignition, >1000cc	1	Engines, spark-ignition, >1000cc	1	1.4839	0.0001	1.1248
84	847191	Digital computer CPU, some storage/input/output	1			1.3658	0.0176	1.0067
84	840820			Diesel engine, motor vehicles	1	1.3594	0.0044	1.0003
84	848180			Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0838	0.9639
30	300439			Hormones, not contraceptive, doses	2	1.2183	0.1502	0.8592
85	854211	Monolithic integrated circuits, digital	5	Monolithic integrated circuits, digital	4	1.1696	0.1068	0.8105
85	851790			Parts of telephone line equipment	1	1.0956	0.1031	0.7365

84	847330	Parts of data processing equipment	3	Parts of data processing equipment	4	1.0757	0.1538	0.7166
35	350790			Enzymes, n.e.s.	1	1.0609	0.2949	0.7018
87	870829	Parts of motor vehicle bodies	3			1.0007	0.0115	0.6416
84	841191	Turbo-jet, -propeller engine, parts	3	Turbo-jet, -propeller engine, parts	3	0.9346	0.0005	0.5755
87	870899	Motor vehicle parts n.e.s.			4	0.7992	0.3285	0.4401
84	841112	Turbo-jet engine, >25 KN	4	Turbo-jet engine, >253 KN	3	0.7913	0.0263	0.4322
88	880330	Aircraft parts n.e.s.	2	Aircraft parts n.e.s.	3	0.772	0.0537	0.4129
85	852520	Transmit-receive apparatus for radio, TV	6	Transmit-receive apparatus for radio, TV	4	0.6469	0.0165	0.2878
30	300220	Vaccines, human	2			0.6229	0.0027	0.2638

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
30	300490	Medicaments, doses, n.e.s.	13	Medicaments, doses, n.e.s.	11	0.4785	0.4894	0.1194
94	940360	Furniture, wooden, n.e.s.	2			0.1749	0.1142	-0.1842
94	940600			Prefabricated buildings	2	-0.1161	0.0934	-0.4752
85	852810	Color TV receivers/monitors/projectors	3			-0.1188	0.0511	-0.4779



38	382390	Chemical products, n.e.s.	2	Chemical products, n.e.s.	2	-0.2594	0.1571	-0.6185
69	690790			Unglazed ceramic tiles, >7cm wide	2	-0.6254	0.1309	-0.9845
89	890590			Floating docks, special function vessels	2	-0.9301	0.0192	-1.2892
85	854430	Ignition sets for vehicles/aircraft/ship	2			-1.141	0.1243	-1.5001
89	890190			Cargo vessels, not tanker or refrigerated	2	-1.2249	3.1087	-1.584
61	610910	T-shirts, of cotton, knit	2			-1.9099	0.0194	-2.269

**Table D.11. Top 20 Potential Export Industries for Dominican Republic Identified through Lagged and Concurrent Analysis: Method 4**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
90	901020	Equipment for photographic laboratories n.e.s.	1			1.7947	0.0003	2.0376
87	870840	Transmissions for motor vehicles	1	Transmissions for motor vehicles	1	1.5444	0.0024	1.7873
84	840820	Diesel engine, motor vehicles	1	Diesel engine, motor vehicles	1	1.3594	0.0145	1.6023
84	848180	Taps, cocks, valves, appliances, n.e.s.	1	Taps, cocks, valves, appliances, n.e.s.	1	1.323	0.0653	1.5659
30	300439	Hormones, not contraceptive, doses	1	Hormones, not contraceptive, doses	1	1.2183	0.0248	1.4612
85	854211	Monolithic integrated circuits, digital	3	Monolithic integrated circuits, digital	1	1.1696	0.002	1.4125
84	842952			Shovels & excavators, revolving superstructure	1	1.1304	0.0013	1.3733
84	847199	Automatic data processing machines	1			1.114	0.2385	1.3569
84	847330	Parts of data processing equipment	3	Parts of data processing equipment	2	1.0757	0.0044	1.3186
85	851150	Generators & alternators	1	Generators & alternators	1	1.0562	0.0073	1.2991

87	870190	Wheeled tractors n.e.s.	1		1	1.0021	0	1.245
87	870829	Parts of motor vehicle bodies	2	Parts of motor vehicle bodies	2	1.0007	0.0446	1.2436
85	850440	Static converters, n.e.s.	1		1	0.9852	0.0788	1.2281
85	853890	Parts of elect switches, protectors	1	Parts of elect switches, protectors	1	0.9786	0.77	1.2215
84	841191			Turbo-jet, - propeller engine, parts	2	0.9346	0.0008	1.1775
87	870899	Motor vehicle parts n.e.s.	3	Motor vehicle parts n.e.s.	2	0.7992	0.2074	1.0421
88	880330			Aircraft parts n.e.s.	2	0.772	0.0012	1.0149
85	852520	Transmit-receive apparatus for radio, TV	4	Transmit-receive apparatus for radio, TV	3	0.6469	0.0679	0.8898

Chap- ter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
85	853710			Electrical control & distribution boards, <1kV	2	0.5934	0.0698	0.8363
30	300490	Medicaments, doses, n.e.s.	9	Medicaments, doses, n.e.s.	9	0.4785	0.1696	0.7214
85	852810	Color TV receivers/ monitors/project	2		2	-0.1188	0.0169	0.1241

		ors						
38	382390	Chemical products, n.e.s.	3	Chemical products, n.e.s.	3	-0.2594	0.4222	-0.0165
70	701090			Glass containers for packing goods	2	-0.471	0.0121	-0.2281
69	690790			Unglazed ceramic tiles, >7cm wide	2	-0.6254	0.0333	-0.3825
85	854430	Ignition sets for vehicles/aircraft/ship	2	Ignition sets for vehicles/aircraft/ship	2	-1.141	0.0684	-0.8981
52	520100	Cotton, not carded/combed	2		2	-2.4363	0	-2.1934

**Table D.12. Top 20 Potential Export Industries for Panama Identified through Lagged and Concurrent Analysis: Method 4**

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
90	901020	Equipment for photographic laboratories n.e.s.	2	Equipment for photographic laboratories n.e.s.	2	1.7947	0.0001	1.9367
39	391190	Polysulfides, -sulfones, n.e.s.	1			1.4205	0.0175	1.5625
84	840820			Diesel engine, motor vehicles	3	1.3594	0.0115	1.5014
38	382200	Diagnostic reagents, n.e.s.	1			1.3443	0.0474	1.4863
84	848180			Taps, cocks, valves, appliances, n.e.s.	1	1.3230	0.0001	1.4650
30	300439	Hormones, not contraceptive, doses	1	Hormones, not contraceptive, doses	1	1.2183	0.1384	1.3603
85	854211	Monolithic integrated circuits, digital	3	Monolithic integrated circuits, digital	5	1.1696	1.9417	1.3116
85	851790	Parts of telephone line equipment	1			1.0956	0.8073	1.2376
84	847330	Parts of data processing equipment	3	Parts of data processing equipment	4	1.0757	0.004	1.2177
35	350790	Enzymes, n.e.s.	1			1.0609	0.071	1.2029
85	851150			Generators & alternators	1	1.0562	0.1384	1.1982

87	870829	Parts of motor vehicle bodies	1	Parts of motor vehicle bodies	2	1.0007	0.004	1.1427
29	293390			Heterocyclic compounds, N-hetero-atoms	1	0.9943	0.3346	1.1363
84	840690	Steam turbines, parts	1			0.9937	0.0005	1.1357
84	841191			Turbo-jet, -propeller engine, parts	4	0.9346	0.1444	1.0766
84	847193	Computer data storage units	2	Computer data storage units	2	0.9144	0.6094	1.0564
87	870899			Motor vehicle parts n.e.s.	1	0.7992	0.0031	0.9412
84	841112	Turbo-jet engine, >25 KN	2	Turbo-jet engine, >25 KN	3	0.7913	0.0016	0.9333
88	880330			Aircraft parts n.e.s.	3	0.7720	0	0.9140
91	910121			Wrist-watch, precious metal, automatic wound	1	0.7554	0.3224	0.8974
85	852520	Transmit-receive apparatus for radio, TV	4	Transmit-receive apparatus for radio, TV	1	0.6469	0.4207	0.7889

Chapter	HS Code	HS Name 2019	Paths 2019	HS Name 2007	Paths 2007	PCI	RCA	PCI-ECI
30	300490			Medicaments, doses, n.e.s.	5	0.4785	1.9417	0.6205
30	300431	Insulin, doses	2			0.3790	1.625	0.5210
94	940360	Furniture, wooden, n.e.s.	2			0.1749	0.0809	0.3169
33	330499			Make-up, n.e.s.	2	0.1699	0.6094	0.3119
87	871000	Tanks, armored fighting vehicles	2			-0.1489	0.2475	-0.0069
38	382390	Chemical products,	2	Chemical products, n.e.s.	2	-0.2594	0.1503	-0.1174

		n.e.s.							
31	310210	Urea, >10kg	3				-0.9008	0	-0.7588
29	290511	Methyl alcohol	3		3		-1.2183	0	-1.0763
52	520100	Cotton, not carded/ combed	4	Cotton, not carded/ combed	2		-2.4363	0	-2.2943

**Table E.1. Industries with Highest Participation in Exports, or Highest Revealed Comparative Advantage, in Costa Rica for 2019 (Costa Rica ECI = 0.3591)**

Industry Code	Industry Name	Exports (%)	RCA	PCI
901839	Medical needles, catheters	6.8272%	57.5396	0.1805
901890	Instruments for medical science, n.e.s.	5.3865%	24.5707	0.2490
902130	Artificial body parts, aids	2.1730%	45.7145	0.3247
999999	Commodities not specified, according to kind	1.0659%	0.5567	-0.1616
902190	Orthopaedic appliances, n.e.s.	0.8758%	16.4100	0.6875
901819	Electro-diagnostic apparatus	0.7623%	8.7990	0.8239
300490	Medicaments, doses, n.e.s.	0.5377%	0.4894	0.4785
401110	Rubber tires, cars, new	0.5368%	3.4021	0.5660
900130	Contact lenses	0.5053%	18.9825	0.9670
854160	Mounted piezo-electric crystals	0.4918%	19.5179	0.8756
392690	Plastic articles, n.e.s.	0.4843%	1.9143	0.5935
300290	Blood	0.4620%	0.7750	1.0955
853669	Electrical plugs & sockets	0.4245%	5.8801	0.9467
902119	Orthopaedic/fracture appliances	0.3855%	9.3514	0.5789
854449	Electric conductors, <80V, no connectors	0.3814%	3.7253	-0.5173
701090	Glass containers for packing goods	0.3405%	8.4828	-0.4710
890190	Cargo vessels, not tanker or refrigerated	0.3398%	3.1087	-1.2249
854211	Monolithic integrated circuits, digital	0.2756%	0.1068	1.1696
901910	Massage & psychological-test apparatus	0.2753%	12.3666	0.1763
401120	Rubber tires, buses, new	0.2418%	2.6973	0.4101
401693	Vulcanized rubber seals	0.2259%	5.0180	0.7558
392112	Plastic sheet, cellular of vinyl chloride	0.2212%	27.8594	0.6552
853690	Electrical switch, protector for <1kV n.e.s.	0.2168%	1.5975	0.9193
854441	Electric conductors <80V, with connectors	0.2111%	1.8595	-0.2322
330210	Mixed odors, food & drink	0.1637%	2.6304	-0.2090
854800	Electrical parts of machinery, n.e.s.	0.1579%	7.7131	0.6728
853340	Variable resistors, rheostats & potentiometers	0.1419%	11.6694	0.3720
611599	Hosiery n.e.s., materials n.e.s., knit	0.1189%	31.1713	-0.5499
391723	Polyvinyl chloride tube, rigid	0.1010%	19.0403	-1.2076
360200	Prepared explosives	0.0848%	23.9491	-0.9863
950669	Balls n.e.s.	0.0751%	38.8073	-0.7002
681120	Sheet/tile of asbestos cement, non-corrugated	0.0650%	17.3105	0.5817
520523	Cotton yarn >85%, sing comb 232-192	0.0647%	10.9901	-1.5605



853329	Electrical resistors, fixed, >20W	0.0561%	14.6346	0.7933
281121	Carbon dioxide	0.0464%	25.1618	-0.7512
900791	Parts and accessories for cinematographic cameras	0.0390%	29.4847	0.1013
520623	Cotton yarn <85%, sing comb 232-192	0.0380%	37.2997	-1.0911
330112	Oils, orange	0.0344%	18.1363	-0.7309
401695	Vulcanized rubber articles, inflatable	0.0309%	14.6696	0.0526
340540	Scouring pastes, powders	0.0203%	10.5358	-0.2927
560741	Binder twine, polyethylene	0.0171%	15.2357	-0.3823
701720	Low expansion lab, hygienic glasswear	0.0137%	11.4448	1.5964
520622	Cotton yarn <85%, sing comb 714-232	0.0061%	10.7614	-0.8764

**Table E.2. Industries with Highest Participation in Exports, or Highest Revealed Comparative Advantage, in Dominican Republic for 2019 (Dominican Republic ECI = -0.2429)**

Industry Code	Industry Name	Exports (%)	RCA	PCI
710812	Gold in unwrought forms	7.4381%	8.5880	-2.6701
901890	Instruments for medical science, n.e.s.	4.2265%	19.2792	0.2490
853620	Automatic circuit breakers, <1kV	2.9909%	99.1844	0.2160
610910	T-shirts, of cotton, knit	2.0399%	17.7484	-1.9099
392690	Plastic articles, n.e.s.	1.5144%	5.9868	0.5935
711319	Jewelry of precious metal	1.1565%	3.1946	-0.4109
521213	Cotton fabric, <200g/m <sup>2</sup> , dye, n.e.s.	0.7432%	783.7346	-1.1418
901819	Electro-diagnostic apparatus	0.6232%	7.1941	0.8239
901839	Medical needles, catheters	0.6129%	5.1652	0.1805
640391	Boots, upper of leather, n.e.s.	0.5402%	10.5421	-0.9846
300610	Surgical goods	0.5229%	28.0200	0.7128
630790	Made up articles, textile	0.4493%	9.1786	-1.2471
850212	Generating sets, diesel, 75-375 kVA	0.4244%	69.0833	-0.7556
853650	Electrical switches for <1kV, n.e.s.	0.3921%	5.2598	0.2383
310520	Nitrogen-phosphorus-potassium fertilizers, >10kg	0.3692%	14.7220	-0.7706
611020	Pullovers, cardigans, of cotton, knit	0.3415%	3.6443	-1.9164
640510	Footwear, n.e.s., uppers leather	0.3201%	105.3209	-0.9597
621210	Brassieres	0.3121%	8.1762	-1.5063
392410	Plastic kitchen ware	0.2661%	6.1543	-0.7328
300510	Medical dressings, with adhesive	0.2600%	16.9901	0.6018
960329	Hair & other toilet brushes	0.2488%	60.5793	-0.1662
901910	Massage & psychological-test apparatus	0.2478%	11.1332	0.1763
640399	Footwear, uppers of leather, n.e.s.	0.2374%	2.2519	-0.9024
711210	Waste/scrap of gold	0.2042%	4.9022	-0.5184
960390	Brushes, n.e.s.	0.2026%	16.3064	-0.6043
851710	Telephone sets	0.1953%	31.8202	-0.2203
854519	Carbon/graphite electrodes, non-furnace	0.1898%	31.9019	-0.3251
300490	Medicaments, doses, n.e.s.	0.1863%	0.1696	0.4785
854441	Electric conductors <80V, with connectors	0.1803%	1.5881	-0.2322
611030	Pullovers, cardigans, of manmade fibers, knit	0.1787%	1.8708	-1.9692

901920	Therapeutic respiration apparatus	0.1783%	5.9071	0.8744
610990	T-shirts, of material n.e.s., knit	0.1693%	3.2058	-1.8570
710813	Gold, semi-manufactured forms	0.1649%	0.4176	-2.2447
330210	Mixed odors, food & drink	0.1461%	2.3471	-0.2090
901820	Ultraviolet or infrared ray apparatus	0.1461%	77.8240	0.6962
293212	Furfuraldehyde	0.1026%	345.2670	0.3299
853510	Electrical fuses, for >1kV	0.0690%	37.5659	0.1959

Industry Code	Industry Name	Exports (%)	RCA	PCI
631010	Rags, textile material, sorted	0.0666%	50.2710	-1.5366
310560	Fertilizers, phosphorus and potassium, <10kg	0.0611%	37.3981	0.4532
631090	Rags, textile material, not sorted	0.0410%	41.0718	-0.8833
520819	Woven n.e.s., >85% <200g/m2, unbleached	0.0393%	20.5523	-1.1189
610210	Women's overcoats, wool/hair, knit	0.0388%	39.0211	-1.1623
853230	Electric capacitors, variable	0.0328%	28.1383	0.7699
620191	Men's anoraks, wool/hair, not knit	0.0247%	26.2691	-0.8533
521049	Woven n.e.s., <85%, fiber, <200g yarn dyed	0.0144%	20.1274	-0.8455
630590	Sacks & bags, packing, of materials n.e.s.	0.0143%	22.2579	-1.7203
580640	Warp fabric, with adhesive	0.0134%	46.3301	0.2633
521059	Woven n.e.s., <85%, fiber, <200g/m2 print	0.0085%	30.4459	-0.8870

**Table E.3. Industries with Highest Participation in Exports, or Highest Revealed Comparative Advantage, in Panama for 2019 (Panama ECI = -0.1420)**

Industry Code	Industry name	Exports (%)	RCA	PCI
292249	Amino-acids, salts, esters, n.e.s.	0.7631%	28.2624	0.9338
293500	Sulfonamides	0.4180%	10.4603	1.0692
294190	Antibiotics	0.3204%	10.1404	0.8383
300420	Antibiotics, doses, n.e.s.	0.1674%	2.8440	-0.0255
300490	Medicaments, doses, n.e.s.	2.1334%	1.9417	0.4785
330300	Perfumes	0.2727%	3.6673	-0.4960
330499	Make-up, n.e.s.	0.1146%	0.6567	0.1699
401110	Rubber tires, cars, new	0.3938%	2.4954	0.5660

540710	Hi-ten filament, nylon, polyamide, polyester	0.2321%	37.3920	-0.3343
610719	Men's underpants or briefs, material n.e.s., knit	0.0356%	40.4872	-1.4158
610721	Men's pajamas, cotton, knit	0.0732%	23.7681	-1.7651
610829	Women's briefs or panties, material n.e.s., knit	0.0647%	55.7490	-1.3837
611249	Women's swimwear, of material n.e.s., knit	0.0096%	26.8645	-1.4885
620119	Men's overcoats, material n.e.s., not knit	0.0241%	20.0879	-1.3848
620199	Men's anoraks, material n.e.s., not knit	0.0258%	22.8697	-1.2266
620349	Men's trousers & shorts, material n.e.s., not knit	0.1496%	24.7740	-1.7462
620412	Women's suits, cotton, not knit	0.0117%	22.7227	-1.4990
620422	Women's ensembles, cotton, not knit	0.0201%	20.4234	-1.7115
620462	Women's trousers & shorts, cotton, not knit	0.1147%	1.4999	-1.9493
620722	Men's pajamas, manmade fiber, not knit	0.0081%	31.5875	-1.7252
630229	Bed linen, of material n.e.s., printed, not knit	0.0087%	22.7781	-1.1404
630399	Curtains, material n.e.s., woven	0.0411%	30.9426	-0.7881
640220	Footwear, of rubber/plastic, plugs fix straps	0.1512%	18.6087	-2.0167
640299	Footwear, sole/upper of rubber/plastic, n.e.s.	0.3766%	4.1207	-1.7852
640319	Sports footwear, uppers of leather	0.2347%	23.6107	-0.7794
640411	Sports footwear, upper textile	0.2719%	4.5292	-0.7864
640419	Footwear, uppers of textile	0.1204%	1.2774	-1.4207
710812	Gold in unwrought forms	0.3409%	0.3936	-2.6701
841510	Air conditioners, window	0.1476%	2.4345	-0.5475
844390	Parts of printing machinery	0.1163%	0.6567	0.9571
847193	Computer data storage units	0.3229%	0.6094	0.9144
847330	Parts of data processing equipment	0.1306%	0.1444	1.0757
850620	Primary cells/batteries, vol>300cc	0.0018%	52.0750	-0.2056
851790	Parts of telephone line equipment	0.3479%	0.8073	1.0956
852520	Transmit-receive apparatus for radio, TV	0.6654%	0.4207	0.6469
852810	Color TV receivers/monitors/projectors	0.2069%	0.7017	-0.1188
870323	Automobiles, spark ignition, 1500-3000cc	0.2604%	0.2485	1.3933
870899	Motor vehicle parts n.e.s.	0.1195%	0.3224	0.7992
890120	Tankers	0.4059%	4.4616	-0.5015
890130	Refrigerated vessels	0.0611%	37.8089	0.6269
890190	Cargo vessels, not tanker or refrigerated	0.5956%	5.4488	-1.2249
890400	Tugs and pusher craft	0.1395%	10.3741	-1.0381

890590	Floating docks, special function vessels	0.2043%	4.9261	-0.9301
920190	Harps, keyboard stringed instrument	0.0068%	34.4868	-0.5592

## APPENDIX F

The concept of economic complexity, introduced by Hausmann et al. (2013), serves as a quantitative metric assessing the sophistication and exclusivity of a country's productive activities. Two key measures, the Product Complexity Index (PCI) and the Economic Complexity Index (ECI), are formulated to quantify the level of sophistication in a nation's economy, considering the requisite skills, capabilities, and knowledge to produce exported goods.

Higher values of the Product Complexity Index (PCI) imply the production of more complex goods, characterized by the need for advanced technologies, specialized skills, and intricate know-how.

Additionally, the Economic Complexity Index (ECI) of a country is positively associated with the PCI of the products it exports. While these indices are publicly available on the Atlas of Economic Complexity website, our analysis involves a finer 6-digit level of product disaggregation, demanding a recalculation of the indices based on the methodology outlined in Hausmann et al. (2013), and summarized in the following lines.

We define the matrix  $M_{cp}$ , where each row corresponds to a country and each column to a product.

The  $i,j$ -th element is 1 if country  $C_i$  exports product  $p_j$  with a Revealed Comparative Advantage greater than 1, and 0 otherwise. Subsequently, the diversity of a country and the ubiquity of a product are calculated as the sums of rows and columns, respectively:

$$Diversity = k_{c,0} = \sum_p M_{cp}$$

$$Ubiquity = k_{p,0} = \sum_c M_{cp}$$

Given the need to account not only for the number of products exported by a country but also the ubiquity of those products, we compute an average ubiquity per country. Similarly, an average diversity is computed for each product, considering the diversity of countries exporting that product. This leads to recursive series, expressed by Equations (1) and (2).

$$(1) \quad k_{c,N} = \frac{1}{k_{c,0}} \sum_p M_{cp} \times k_{p,N-1}$$

$$(2) \quad k_{p,N} = \frac{1}{k_{p,0}} \sum_c M_{cp} \times k_{c,N-1}$$

If (2) is replaced into (1) the following equation is obtained:

where

The Economic Complexity Index (ECI) is defined by standardizing the eigenvector associated with the second largest eigenvalue of the matrix. Similarly, the Product Complexity Index (PCI) is defined by standardizing the eigenvector associated with the second largest eigenvalue of the matrix. These indices, being standardized, convey information about product complexities above average with values greater than 0 and below average with values less than 0. Importantly, while the ECI and PCI may differ from those available on the Atlas of Economic Complexity, they serve as effective proxies for product complexity levels between countries and products effectively.

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The Georgetown Americas Institute's Latin America in the Global Economy (LAGE) program is a multiyear initiative to advance research and promote dialogue within the academy and with governments, the private sector, and civil society around the most critical economic challenges facing the region. A critical focus will be the emerging position of Latin America and the Caribbean (LAC) in a new global economic trade architecture characterized by deep structural changes.

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